Amino acid sequence of the B4ECv3 protein

MELRVLLCWASLAAALEETLLNTKLETADLKWVTFPQVDGQWEELSG
LDEEQHSVRTYEVCEVQRAPGQAHWLRTGWVPRRGAVHVYATLRFTM
LECLSLPRAGRSCKETFTVFYYESDADTATALTPAWMENPYIKVDTV
AAEHLTRKRPGAEATGKVNVKTLRLGPLSKAGFYLAFQDQGACMALL
SLHLFYKKCAQLTVNLTRFPETVPRELVVPVAGSCVVDAVPAPGPSP
SLYCREDGQWAEQPVTGCSCAPGFEAAEGNTKCRACAQGTFKPLSGE
GSCQPCPANSHSNTIGSAVCQCRVGYFRARTDPRGAPCTTPPSAPRS
VVSRLNGSSLHLEWSAPLESGGREDLTYALRCRECRPGGSCAPCGGD
LTFDPGPRDLVEPWVVVRGLRPDFTYTFEVTALNGVSSLATGPVPFE
PVNVTTDREVPPAVSDIRVTRSSPSSLSLAWAVPRAPSGAWLDYEVK
YHEKGAEGPSSVRFLKTSENRAELRGLKRGASYLVQVRARSEAGYGP
FGQEHHSQTQLDESEGWREQGSKRAILQIEGKPIPNPLLGLDSTRTG
HHHHHH

Fig. 1

Amino acid sequence of the B4ECv3NT protein

MELRVLLCWASLAAALEETLLNTKLETADLKWVTFPQVDGQWEELSGL
DEEQHSVRTYEVCEVQRAPGQAHWLRTGWVPRRGAVHVYATLRFTMLE
CLSLPRAGRSCKETFTVFYYESDADTATALTPAWMENPYIKVDTVAAE
HLTRKRPGAEATGKVNVKTLRLGPLSKAGFYLAFQDQGACMALLSLHL
FYKKCAQLTVNLTRFPETVPRELVVPVAGSCVVDAVPAPGPSPSLYCR
EDGQWAEQPVTGCSCAPGFEAAEGNTKCRACAQGTFKPLSGEGSCQPC
PANSHSNTIGSAVCQCRVGYFRARTDPRGAPCTTPPSAPRSVVSRLNG
SSLHLEWSAPLESGGREDLTYALRCRECRPGGSCAPCGGDLTFDPGPR
DLVEPWVVVRGLRPDFTYTFEVTALNGVSSLATGPVPFEPVNVTTDRE
VPPAVSDIRVTRSSPSSLSLAWAVPRAPSGAWLDYEVKYHEKGAEGPS
SVRFLKTSENRAELRGLKRGASYLVQVRARSEAGYGPFGQEHHSQTQL
DESEGWREQGSKRAILQISSTVAAARV

Fig. 2

Amino acid sequence of the B2EC protein

MAVRRDSVWKYCWGVLMVLCRTAISKSIVLEPIYWNSSNSKFLPGQGL
VLYPQIGDKLDIICPKVDSKTVGQYEYYKVYMVDKDQADRCTIKKENT
PLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNKDYYIISTSNGSLEG
LDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPELEAGTNGR
SSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVGSHHHHHH

Fig. 3

Amino acid sequence of the B4ECv3-FC protein

MELRVLLCWASLAAALEETLLNTKLETADLKWVTFPQVDGQWEEL
SGLDEEQHSVRTYEVCEVQRAPGQAHWLRTGWVPRRGAVHVYATL
RFTMLECLSLPRAGRSCKETFTVFYYESDADTATALTPAWMENPY
IKVDTVAAEHLTRKRPGAEATGKVNVKTLRLGPLSKAGFYLAFQD
QGACMALLSLHLFYKKCAQLTVNLTRFPETVPRELVVPVAGSCVV
DAVPAPGPSPSLYCREDGQWAEQPVTGCSCAPGFEAAEGNTKCRA
CAQGTFKPLSGEGSCQPCPANSHSNTIGSAVCQCRVGYFRARTDP
RGAPCTTPPSAPRSVVSRLNGSSLHLEWSAPLESGGREDLTYALR
CRECRPGGSCAPCGGDLTFDPGPRDLVEPWVVVRGLRPDFTYTFE
VTALNGVSSLATGPVPFEPVNVTTDREVPPAVSDIRVTRSSPSSL
SLAWAVPRAPSGAWLDYEVKYHEKGAEGPSSVRFLKTSENRAELR
GLKRGASYLVQVRARSEAGYGPFGQEHHSQTQLDESEGWREQDPE
PKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTC
VVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVL
TVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTL
PPSRDELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPP
VLDSDGSFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSL
SLSPGK

Fig. 4

Amino acid sequence of the B2EC-FC protein

MAVRRDSVWKYCWGVLMVLCRTAISKSIVLEPIYWNSSNSKFLPGQ
GLVLYPQIGDKLDIICPKVDSKTVGQYEYYKVYMVDKDQADRCTIK
KENTPLLNCAKPDQDIKFTIKFQEFSPNLWGLEFQKNKDYYIISTS
NGSLEGLDNQEGGVCQTRAMKILMKVGQDASSAGSTRNKDPTRRPE
LEAGTNGRSSTTSPFVKPNPGSSTDGNSAGHSGNNILGSEVDPEPK
SCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTPEVTCVVV
DVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTVLH
QDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRD
ELTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDG
SFFLYSKLTVDKSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

Fig. 5

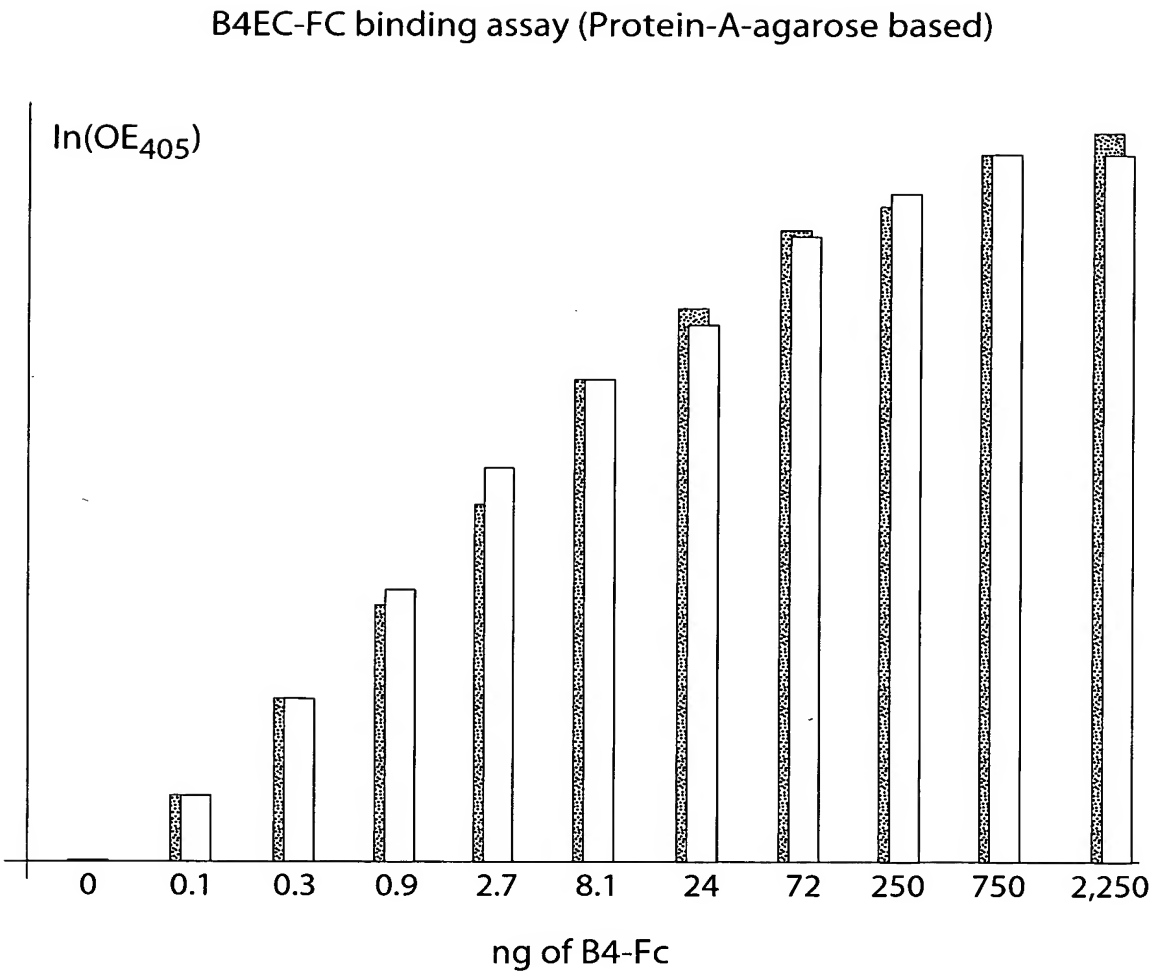

B4EC-FC binding assay (Protein-A-agarose based)
In(OE405)
0
0.1
0.3
0.9
2.7
8.1
24
72
250
750
2,250
ng of B4-Fc

Fig. 6

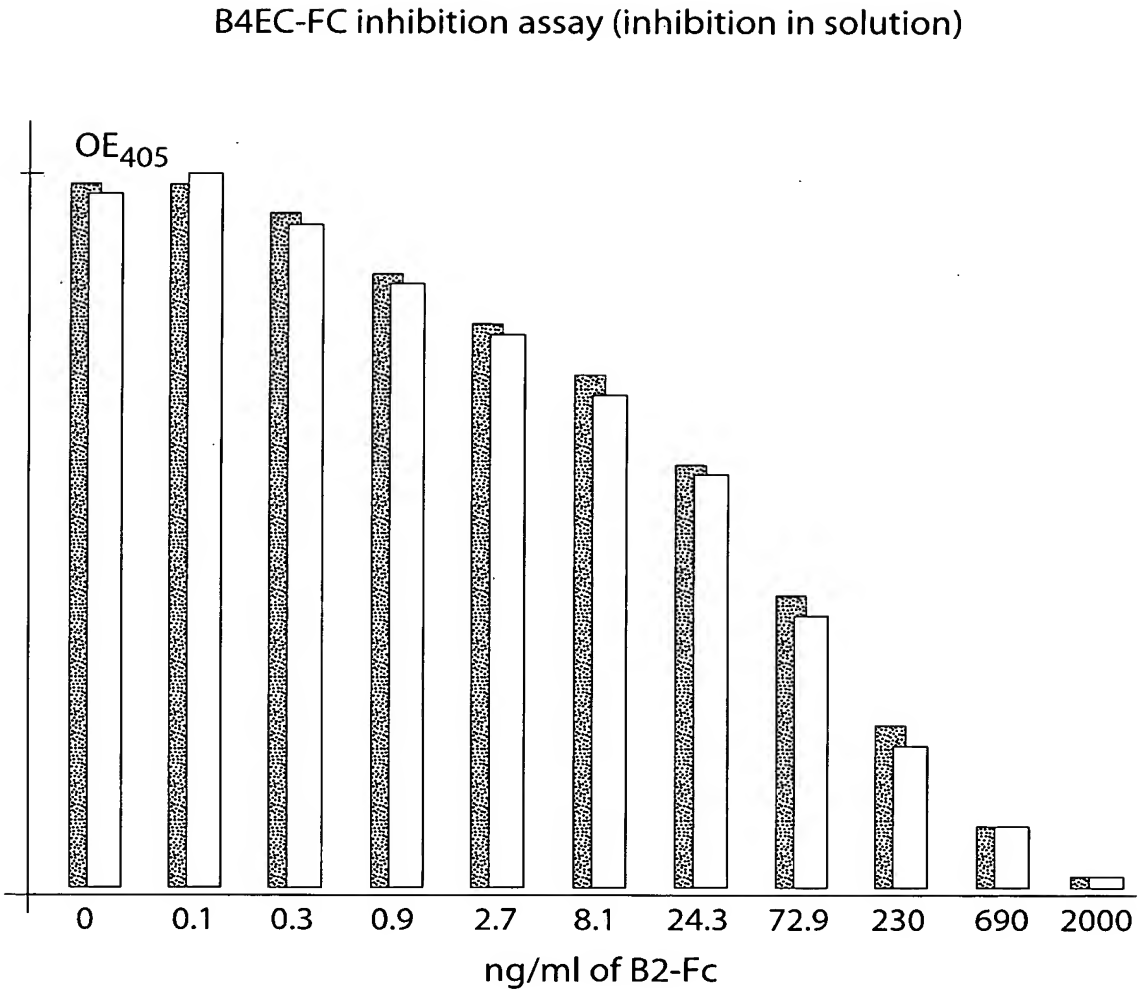

B4EC-FC inhibition assay (inhibition in solution)
OE405
0
0.1
0.3
0.9
2.7
8.1
24.3
72.9
230
690
2000
ng/ml of B2-Fc

Fig. 7

B2EC-FC binding assay (Protein-A-agarose based assay)

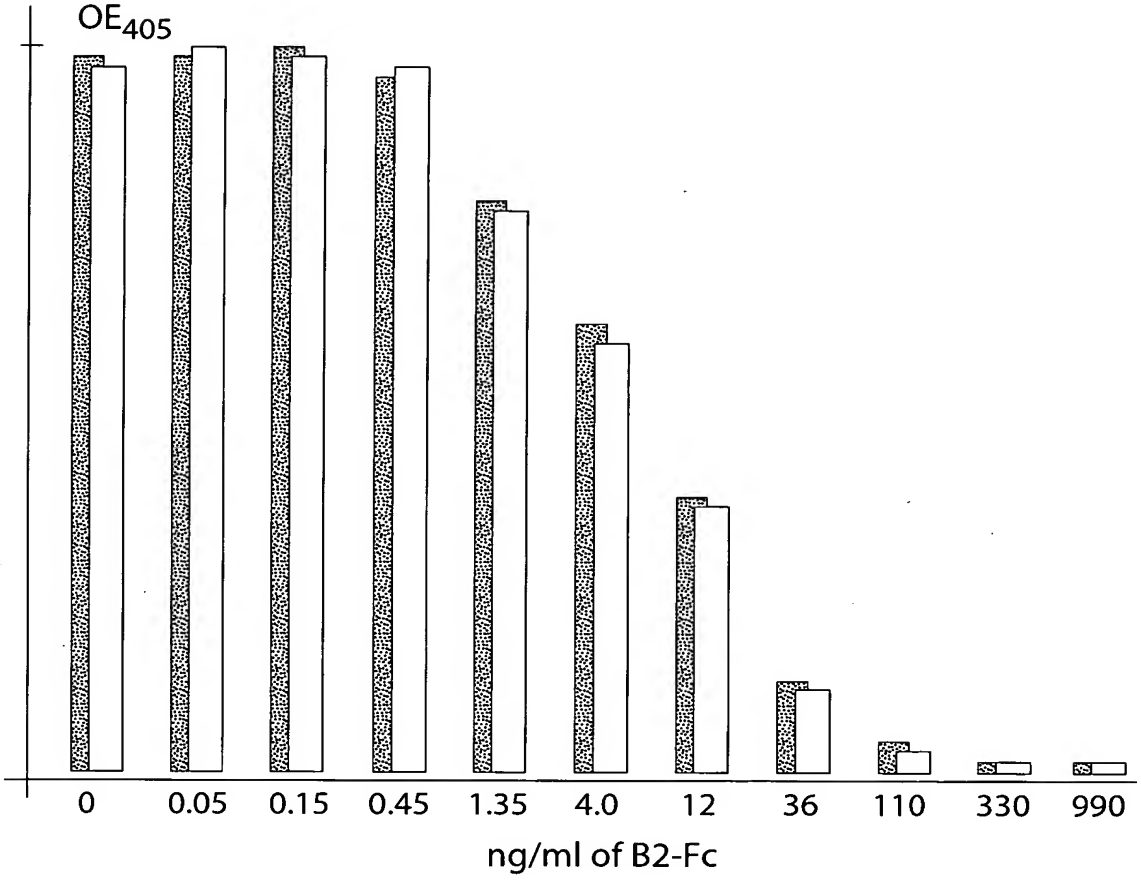


Fig. 8

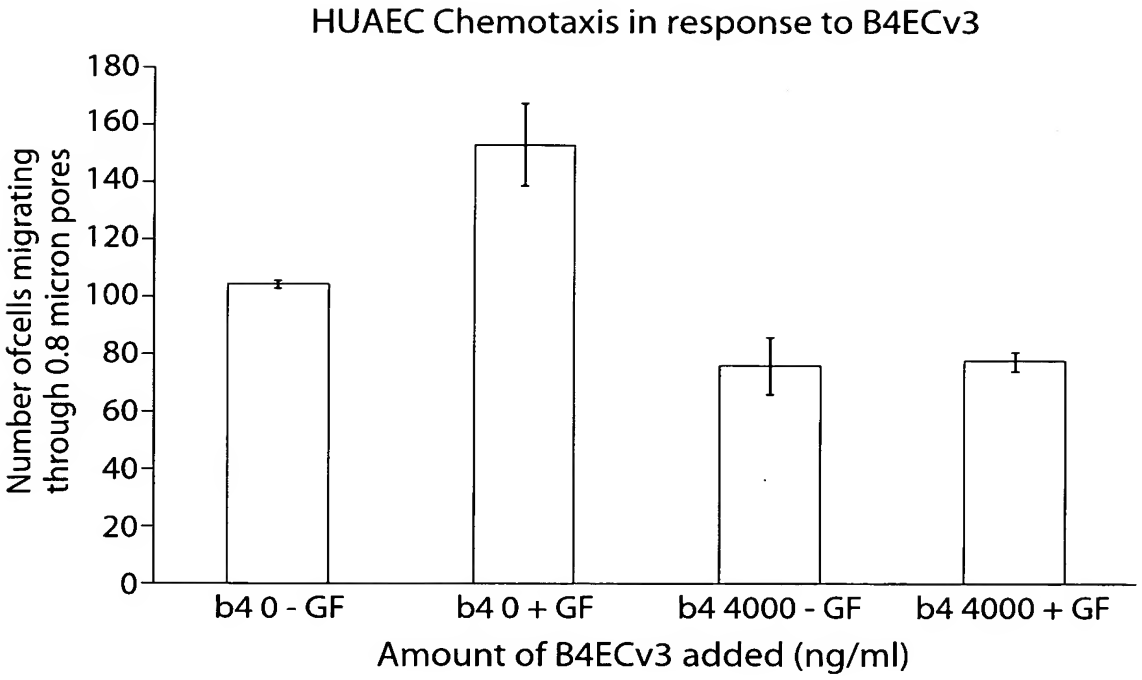

HUAEC Chemotaxis in response to B4ECv3
Number ofcells migrating through 0.8 micron pores
180
160
140
120
100
80
60
40
20
0
b4 0 - GF
b4 0 + GF
b4 4000 - GF
b4 4000 + GF
Amount of B4ECv3 added (ng/ml)

Fig. 9

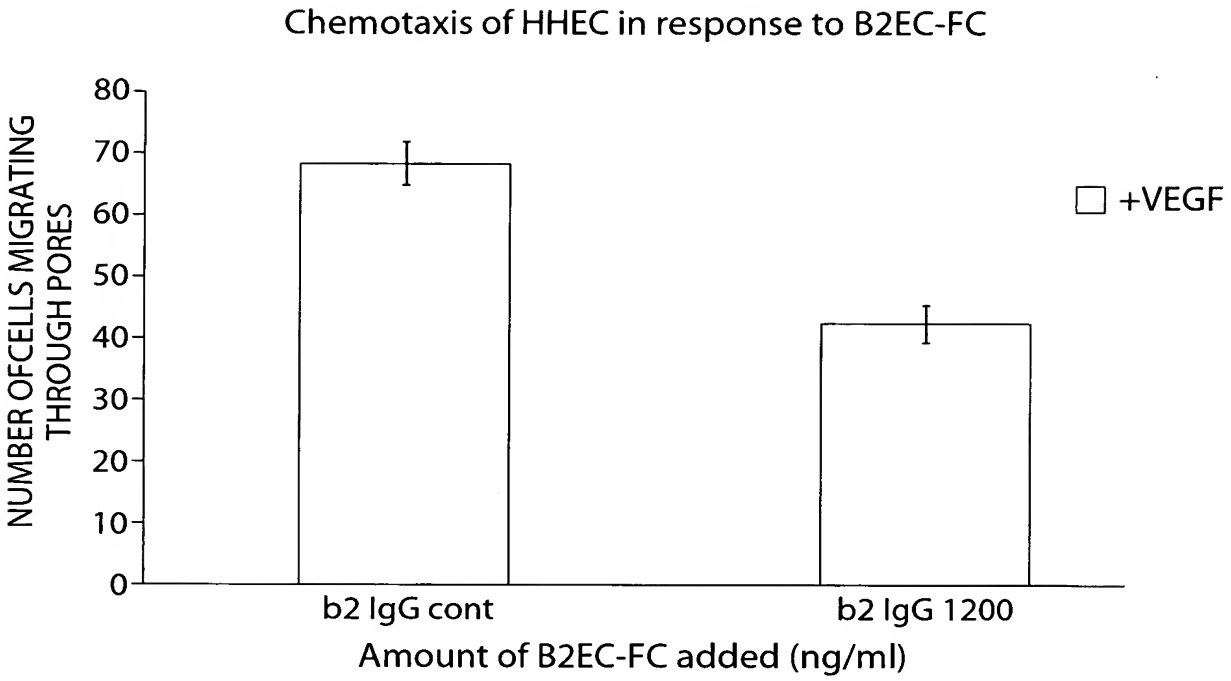

Chemotaxis of HHEC in response to B2EC-FC
NUMBER OFCELLS MIGRATING THROUGH PORES
80
70
60
50
40
30
20
10
0
+VEGF
b2 IgG cont
b2 IgG 1200
Amount of B2EC-FC added (ng/ml)

Fig. 10

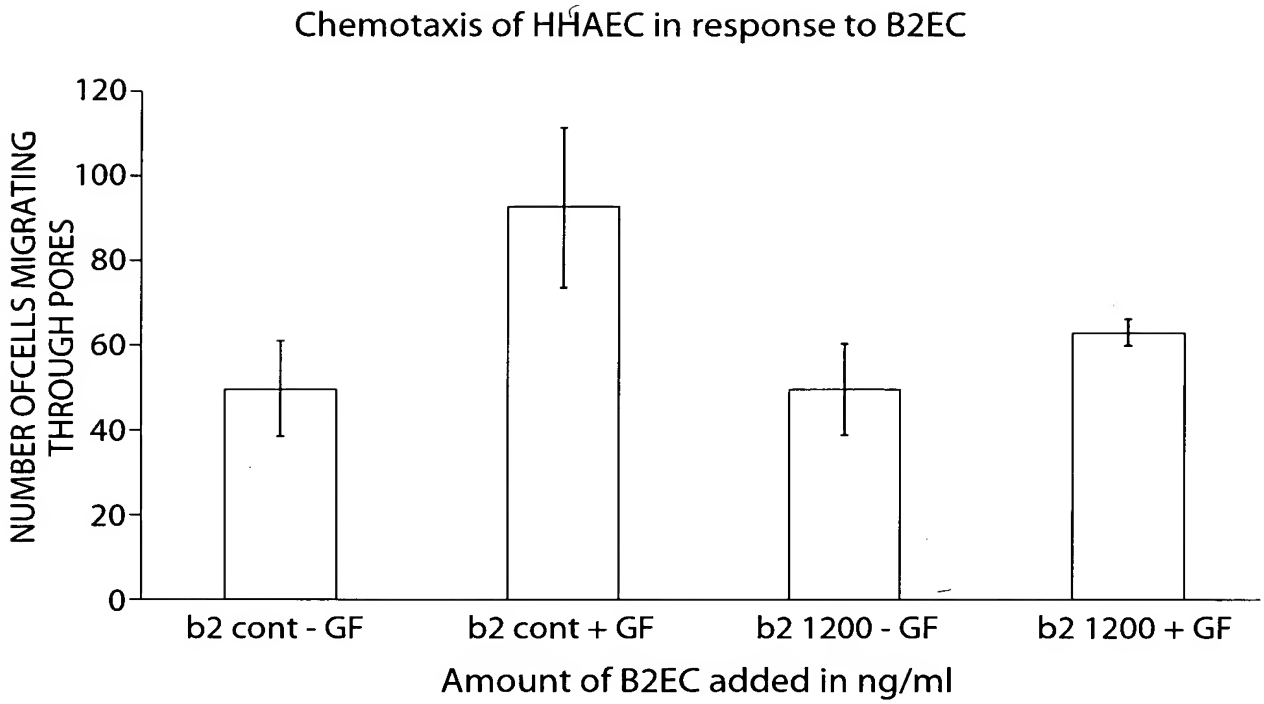

Chemotaxis of HHAEC in response to B2EC
NUMBER OFCELLS MIGRATING THROUGH PORES
120
100
80
60
40
20
0
b2 cont - GF
b2 cont + GF
b2 1200 - GF
b2 1200 + GF
Amount of B2EC added in ng/ml

Fig. 11

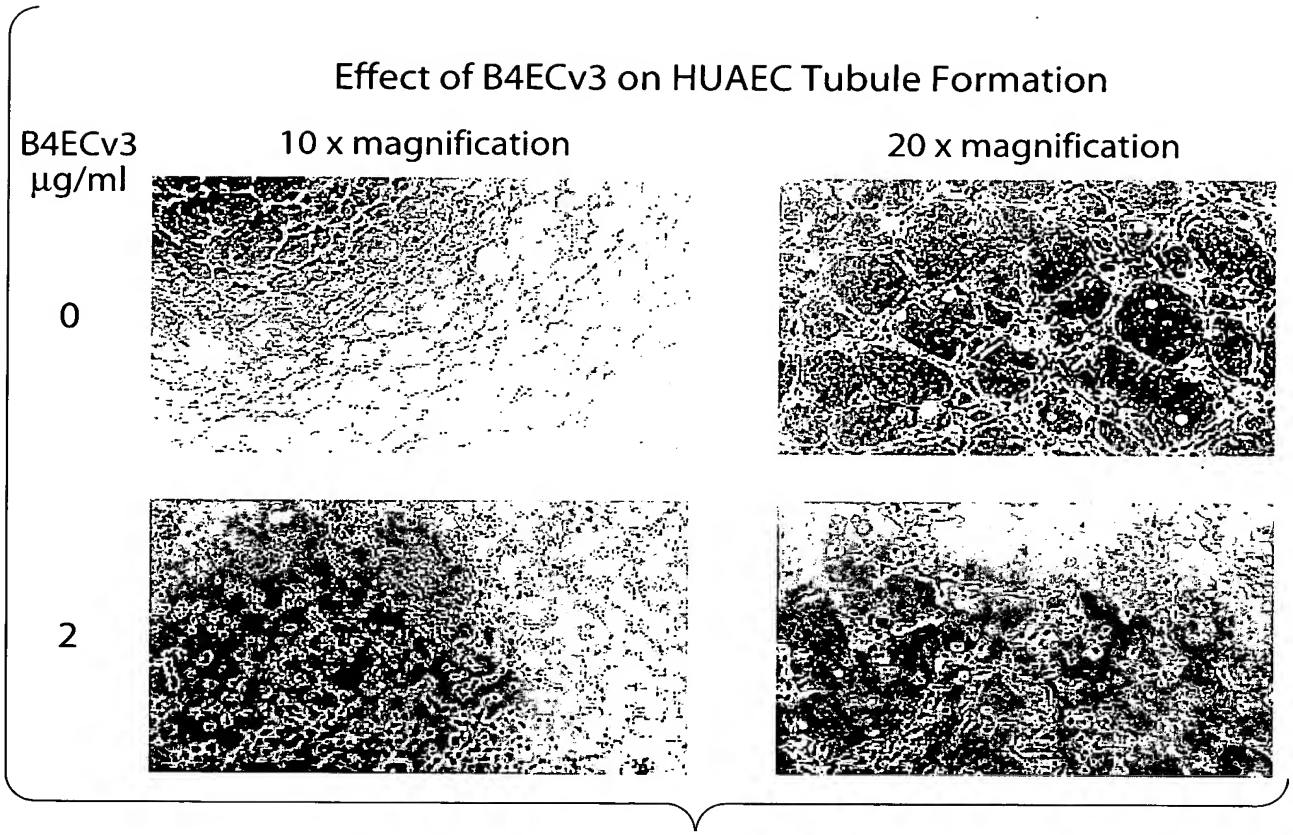

Effect of B4ECv3 on HUAEC Tubule Formation
B4ECv3 µg/ml
10 x magnification
20 x magnification
0
2

Fig. 12

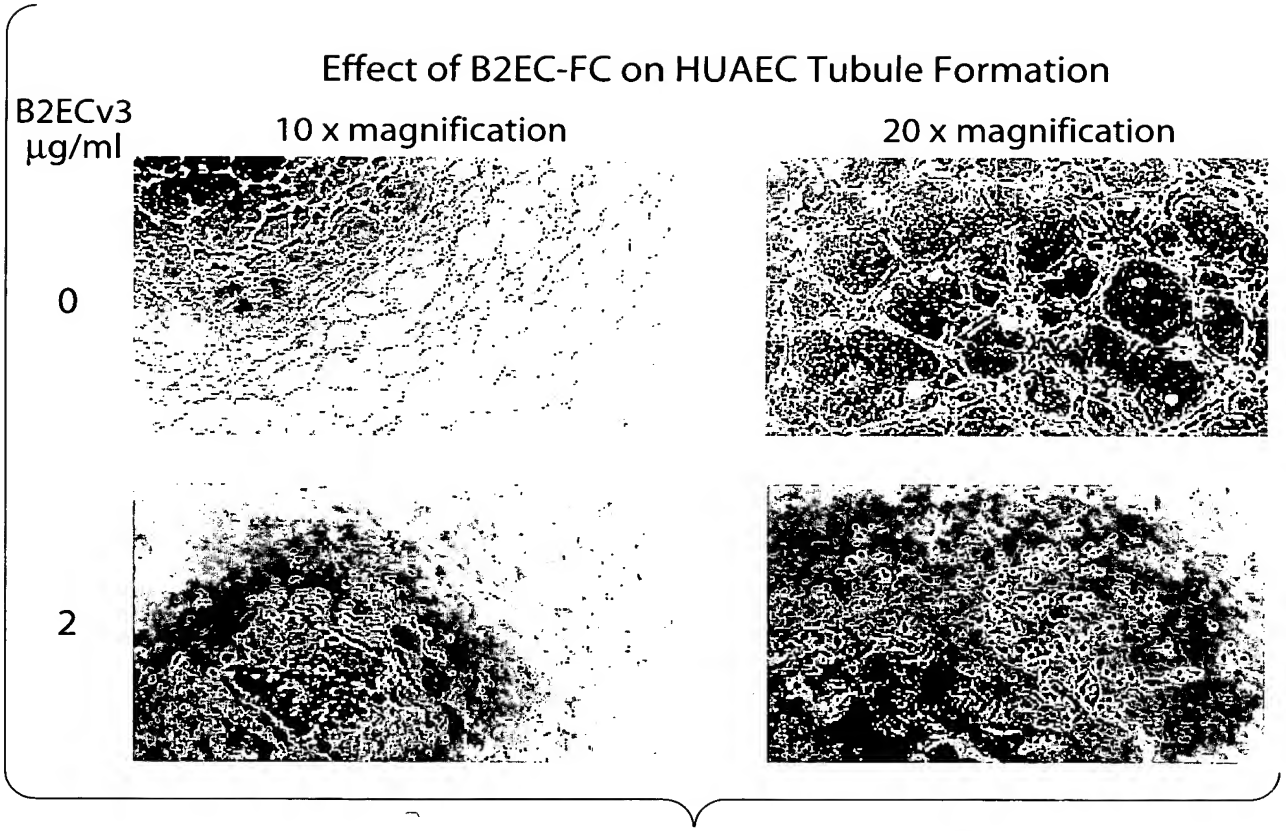
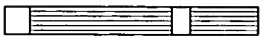

Effect of B2EC-FC on HUAEC Tubule Formation
B2ECv3 µg/ml
10 x magnification
20 x magnification
0
2

Fig. 13

hEphrin B2 constructs

VECTOR	DETAILS	
pET15b	*E.coli*	
pGEX	*E.coli*	
pEF6	Mammalian, CMV promoter transient	
pAPtag-2	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pRK5	Mammalian, CMV promoter transient	
pcDNA3	Mammalian, G418, CMV prompter, transient and stable	
pEF6	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pEF6	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pEF6	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pEF6	Mammalian, Blasticidin S, EF1a promoter, transient and stable	
pIG-Fc	Mammalian, CMV promoter transient	

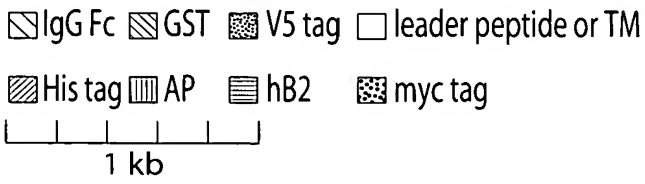


Fig. 14

hEph B4 constructs

VECTOR	DETAILS
pET15b	*E.coli*
pET15b	*E.coli*
pGEX	*E.coli*
pGEX	*E.coli*
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pAPtag-2	Mammalian, CMV promoter
pAPtag-2	Mammalian, CMV promoter
pAPtag-2	Mammalian, CMV promoter
pRK5	Mammalian, CMV promoter
pcDNA3	Mammalian, G418 CMV promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pEF6	Mammalian, Blasticidin S, EF1a promoter
pIG-Fc	Mammalian, CMV promoter transient
pIG-Fc	Mammalian, CMV promoter transient

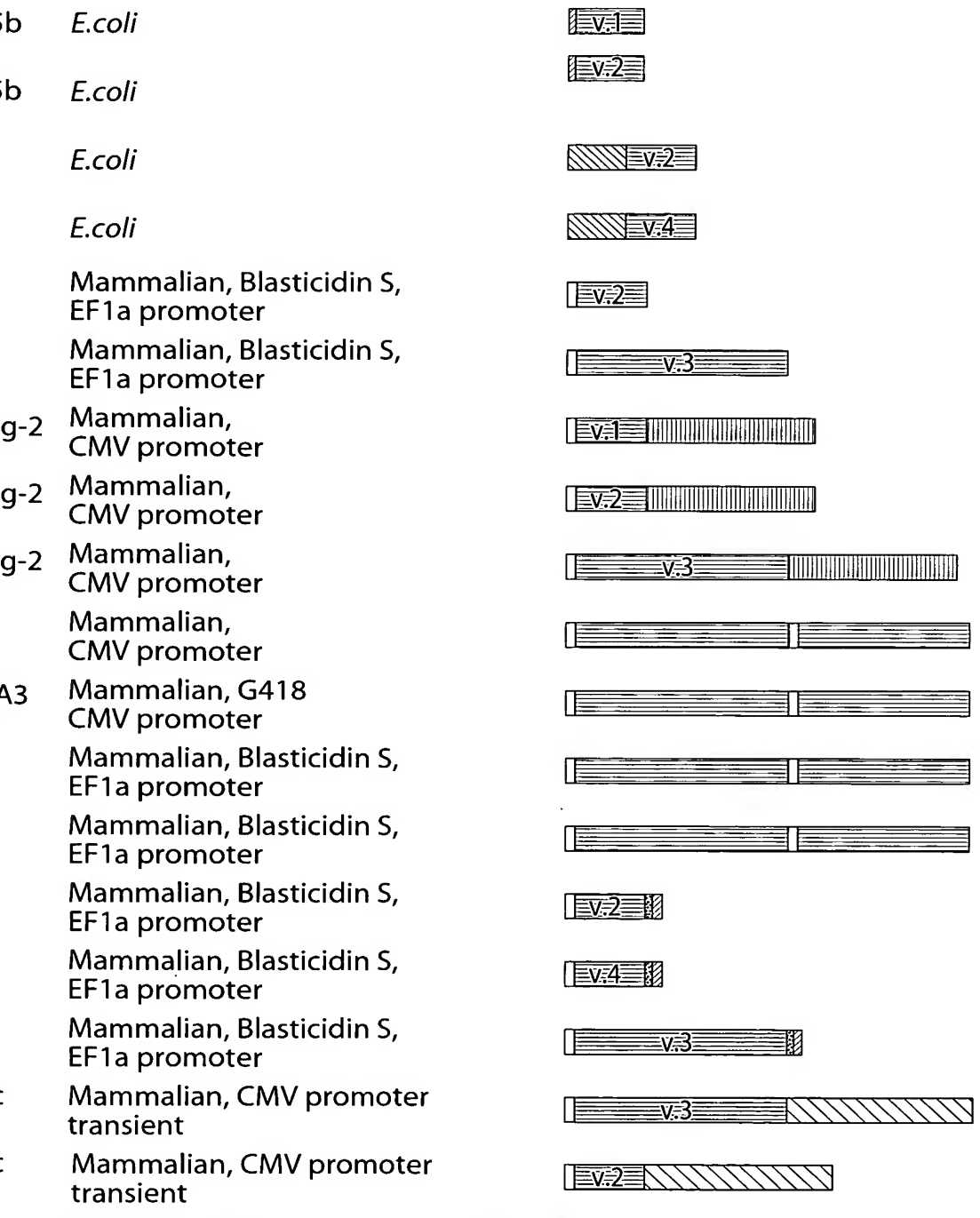


Fig. 15

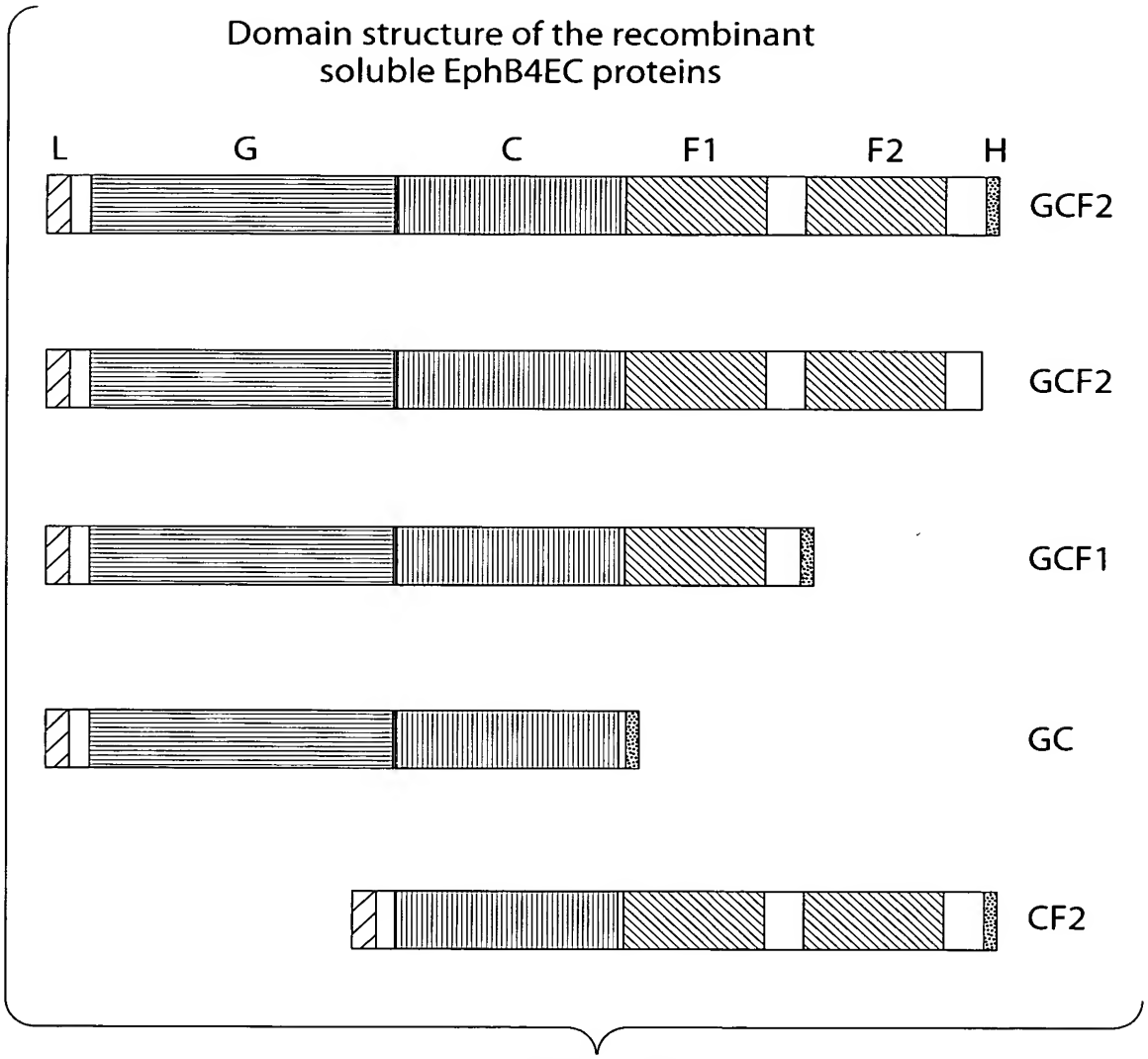

Domain structure of the recombinant
soluble EphB4EC proteins
L
G
C
F1
F2
H
GCF2
GCF2
GCF1
GC
CF2

Fig. 16

Purification and ligand binding properties of the EphB4EC proteins

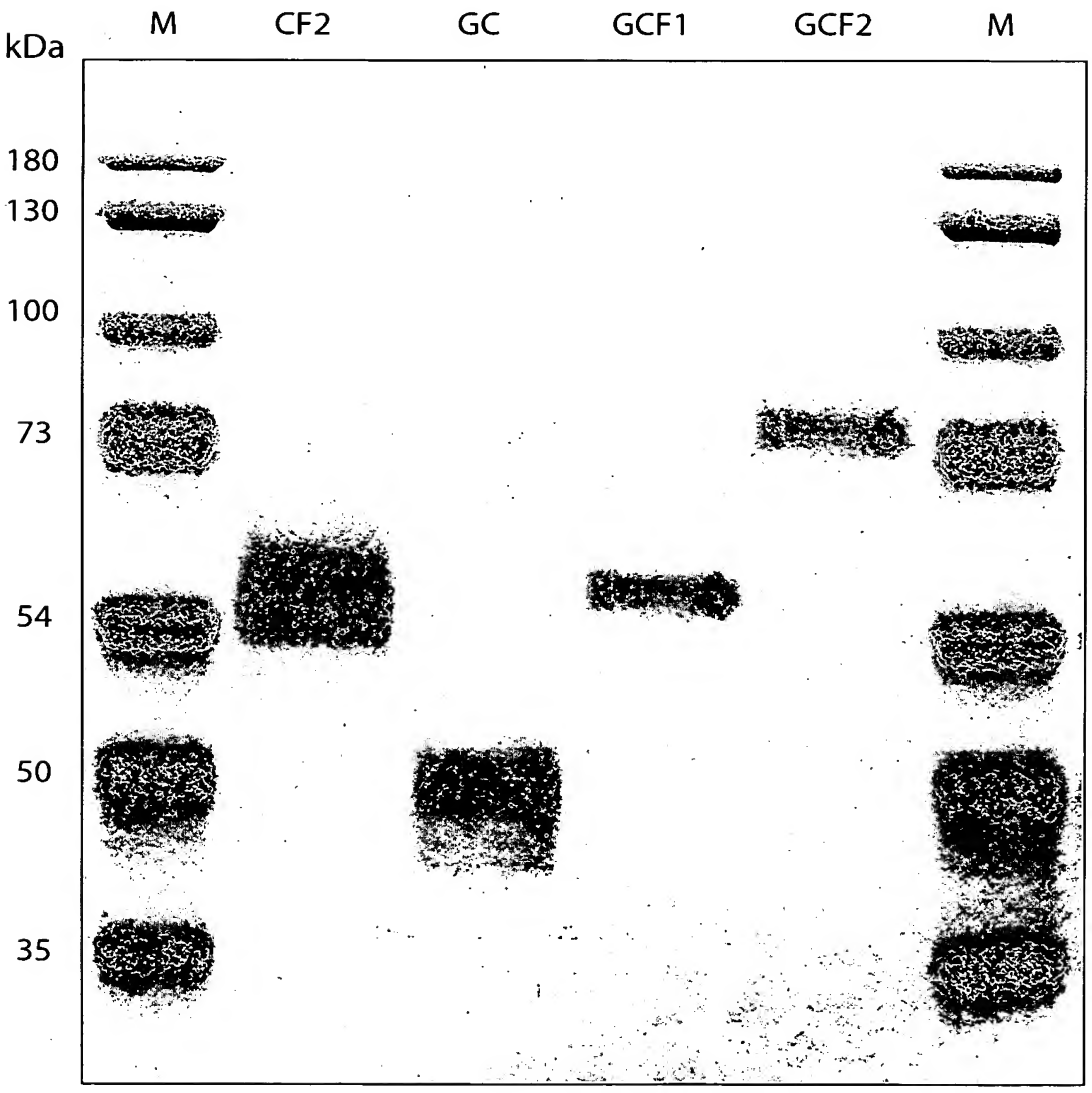


Fig. 17A

Binding of Ephrin B2-AP fusion to EphB4-derived recombinant proteins immobilized on NTA-agarose beads

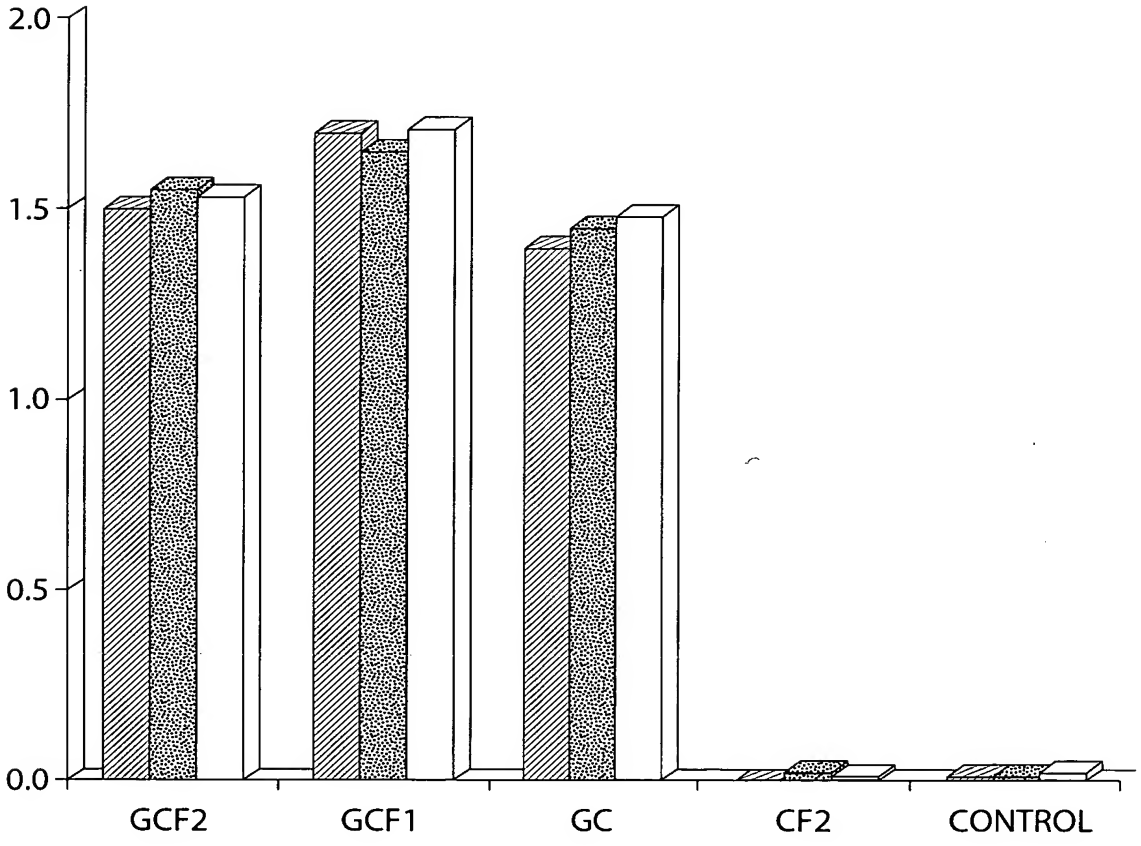


Fig. 17B

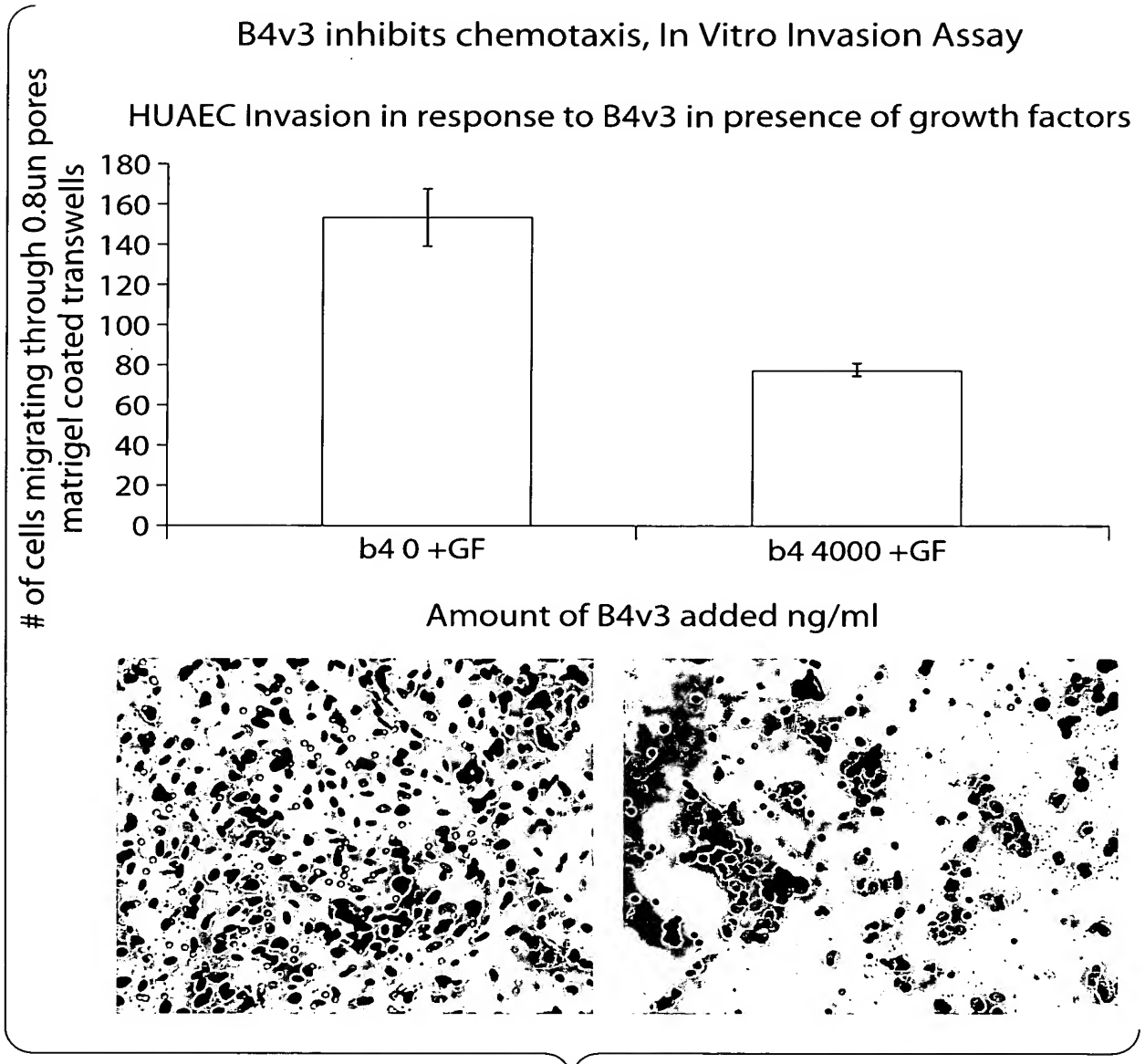

B4v3 inhibits chemotaxis, In Vitro Invasion Assay
HUAEC Invasion in response to B4v3 in presence of growth factors
# of cells migrating through 0.8un pores matrigel coated transwells
180
160
140
120
100
80
60
40
20
0
b4 0 +GF
b4 4000 +GF
Amount of B4v3 added ng/ml

Fig. 18

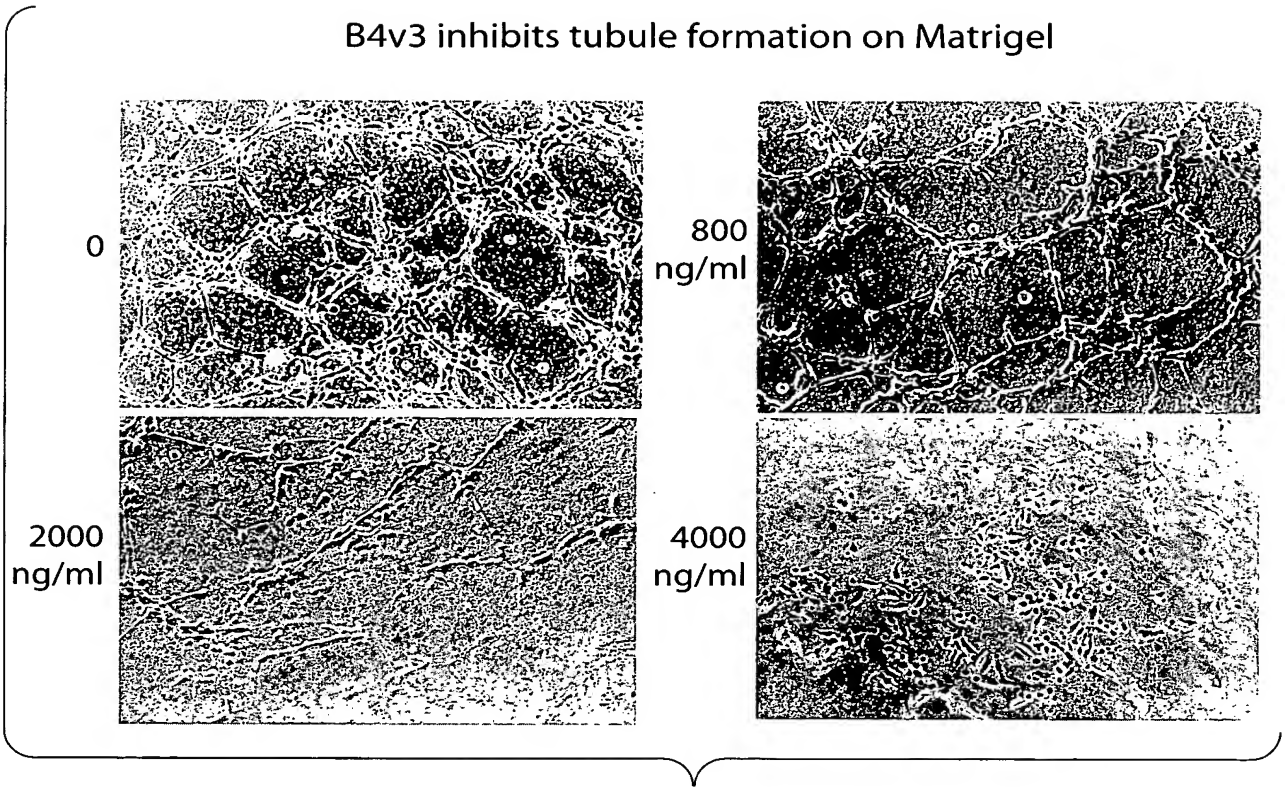

B4v3 inhibits tubule formation on Matrigel
0
800 ng/ml
2000 ng/ml
4000 ng/ml

Fig. 19A

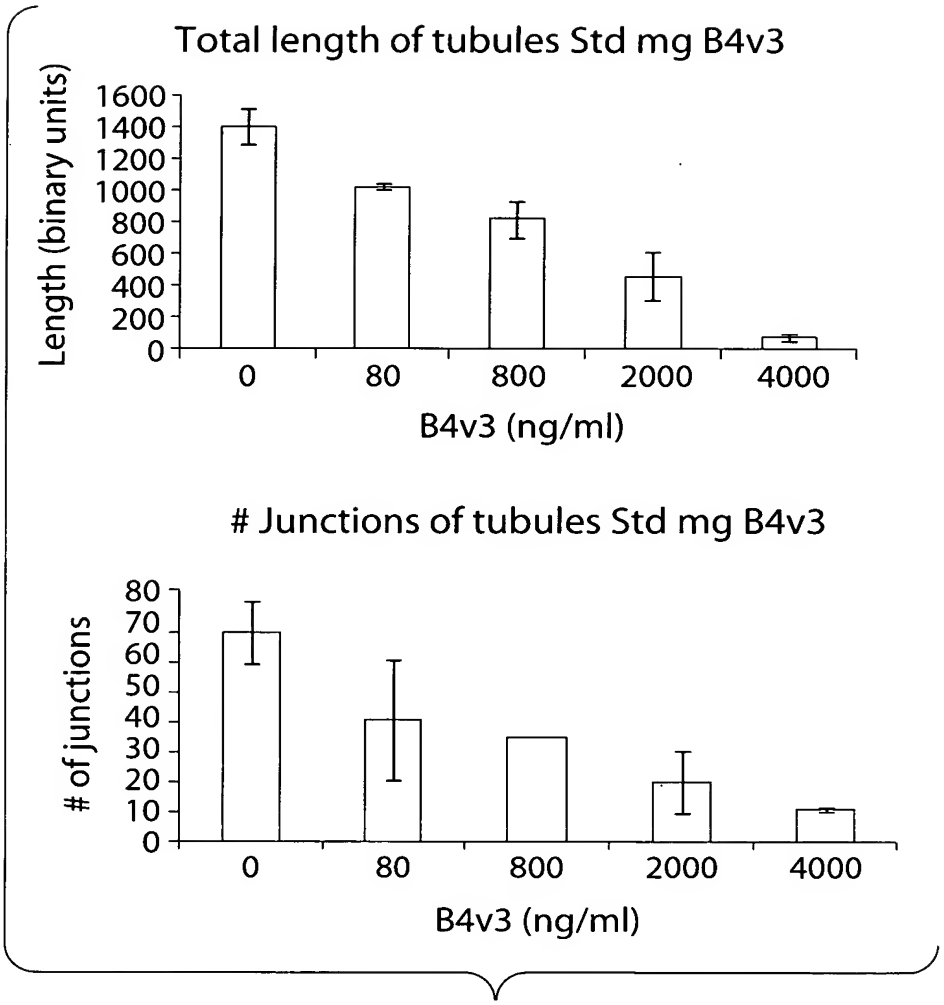

Total length of tubules Std mg B4v3
Length (binary units)
1600
1400
1200
1000
800
600
400
200
0
0
80
800
2000
4000
B4v3 (ng/ml)
Junctions of tubules Std mg B4v3
of junctions
80
70
60
50
40
30
20
10
0
0
80
800
2000
4000
B4v3 (ng/ml)

Fig. 19B

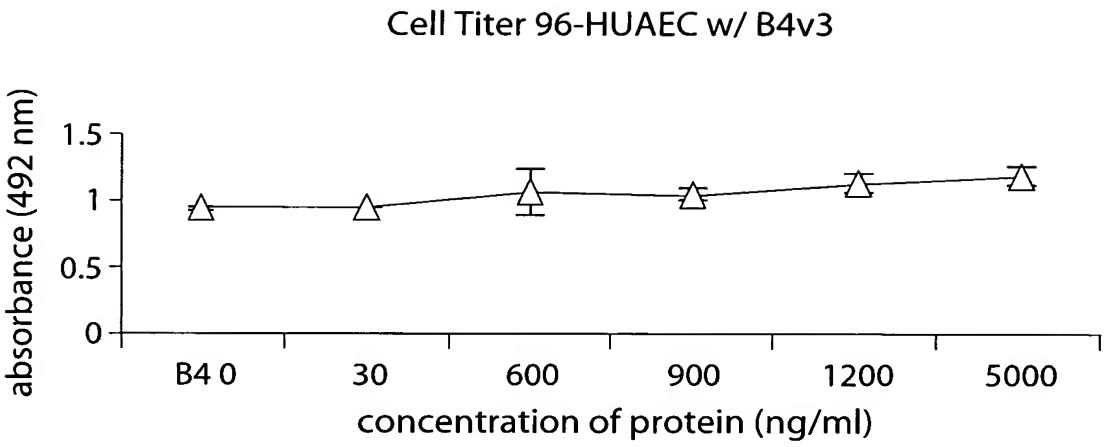

Cell Titer 96-HUAEC w/ B4v3
absorbance (492 nm)
1.5
1
0.5
0
B4 0
30
600
900
1200
5000
concentration of protein (ng/ml)

Fig. 20

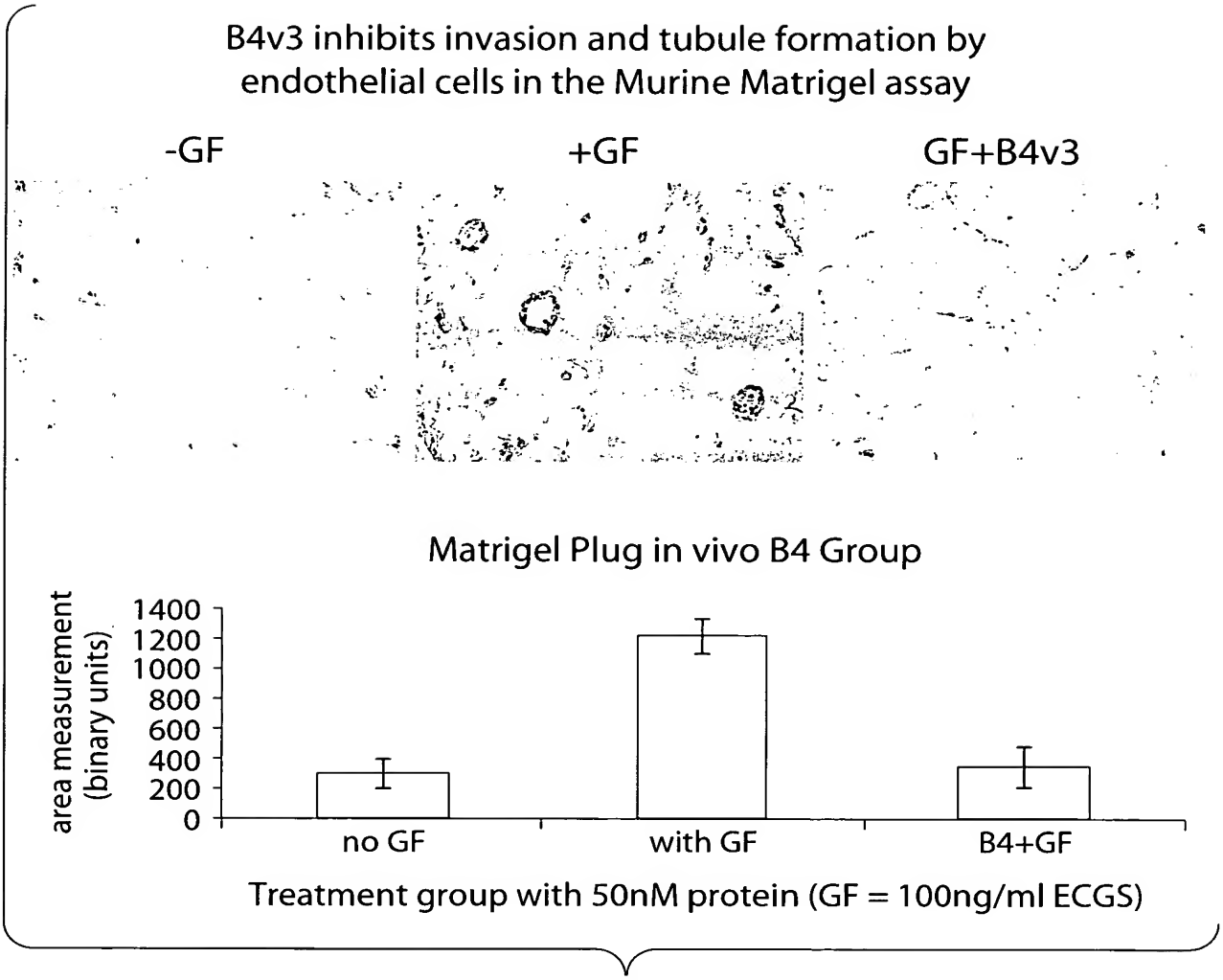

B4v3 inhibits invasion and tubule formation by endothelial cells in the Murine Matrigel assay
-GF
+GF
GF+B4v3
Matrigel Plug in vivo B4 Group
area measurement (binary units)
1400
1200
1000
800
600
400
200
0
no GF
with GF
B4+GF
Treatment group with 50nM protein (GF = 100ng/ml ECGS)

Fig. 21

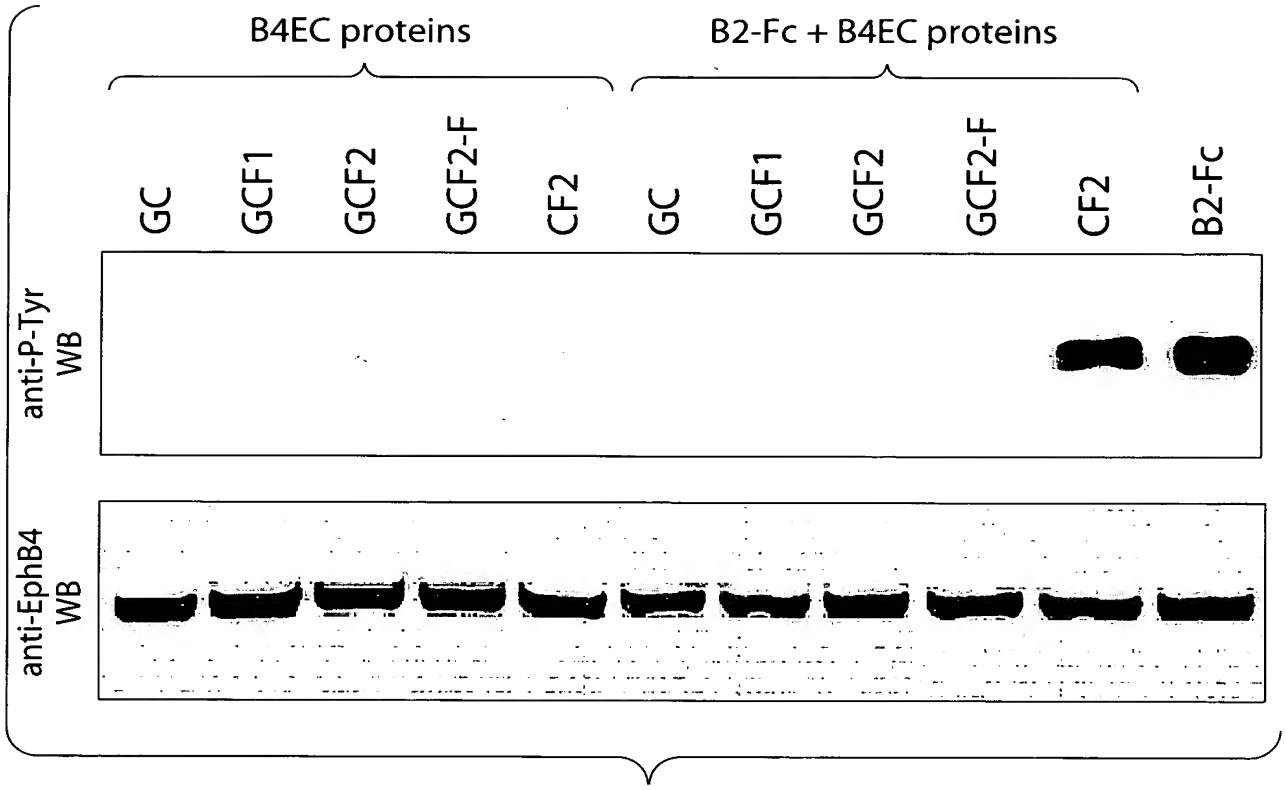

B4EC proteins
B2-Fc + B4EC proteins
GC
GCF1
GCF2
GCF2-F
CF2
GC
GCF1
GCF2
GCF2-F
CF2
B2-Fc
anti-P-Tyr WB
anti-EphB4 WB

Fig. 22

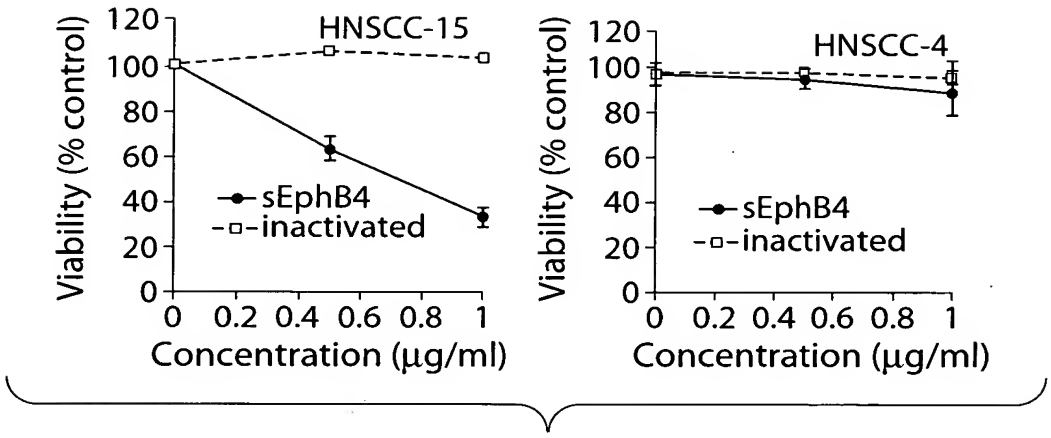


Fig. 23A

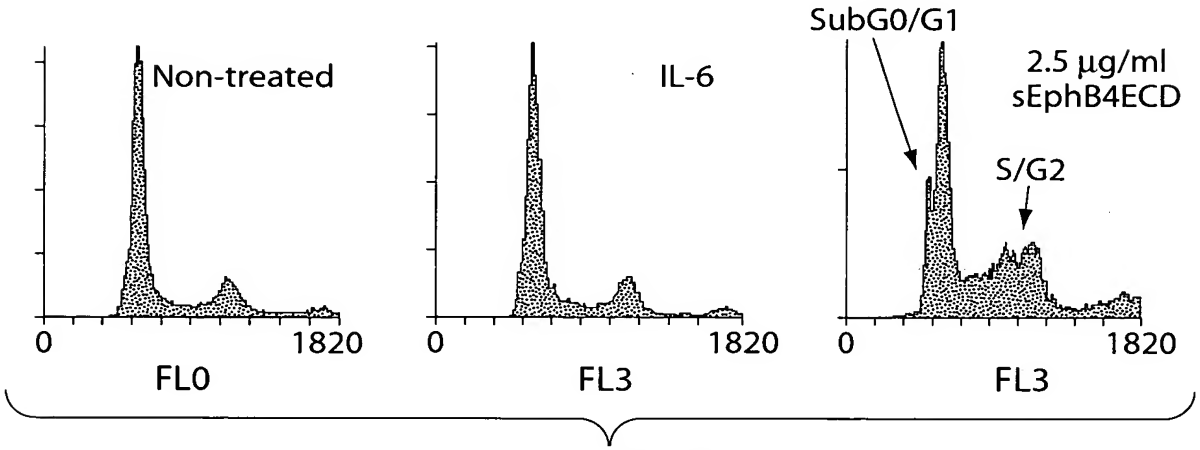
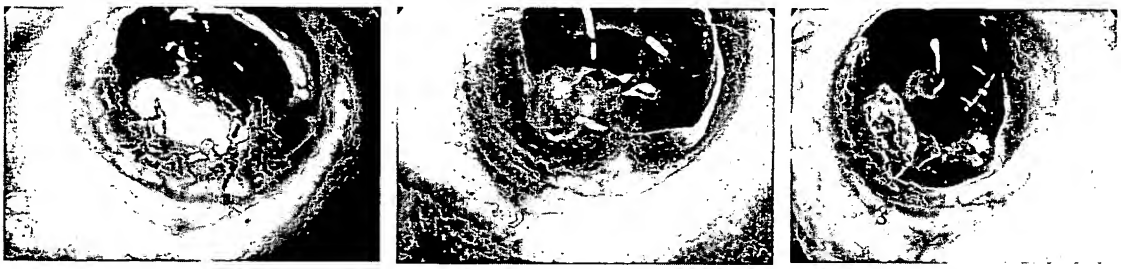


Fig. 23B

B4v3 inhibitis neovascular response in a murine corneal hydron micropocket assay



+GF B4+GF -GF

Fig. 24

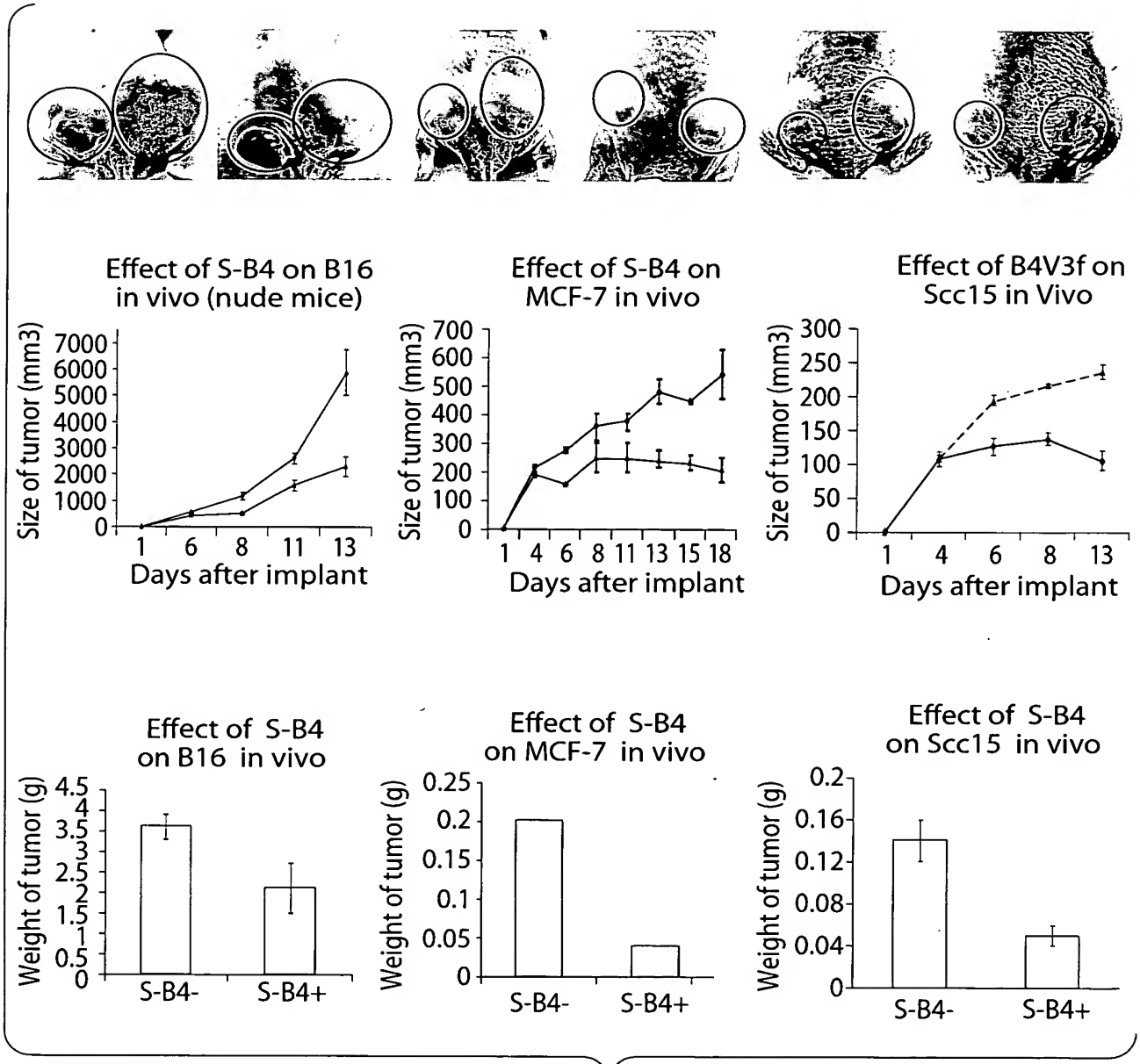

Effect of S-B4 on B16 in vivo (nude mice)
Size of tumor (mm3)
7000
6000
5000
4000
3000
2000
1000
0
1 6 8 11 13
Days after implant
Effect of S-B4 on MCF-7 in vivo
Size of tumor (mm3)
700
600
500
400
300
200
100
0
1 4 6 8 11 13 15 18
Days after implant
Effect of B4V3f on Scc15 in Vivo
Size of tumor (mm3)
300
250
200
150
100
50
0
1 4 6 8 13
Days after implant
Effect of S-B4 on B16 in vivo
Weight of tumor (g)
4.5
4
3.5
2.5
2
1.5
1
0.5
0
S-B4- S-B4+
Effect of S-B4 on MCF-7 in vivo
Weight of tumor (g)
0.25
0.2
0.15
0.1
0.05
0
S-B4- S-B4+
Effect of S-B4 on Scc15 in vivo
Weight of tumor (g)
0.2
0.16
0.12
0.08
0.04
0
S-B4- S-B4+

Fig. 25

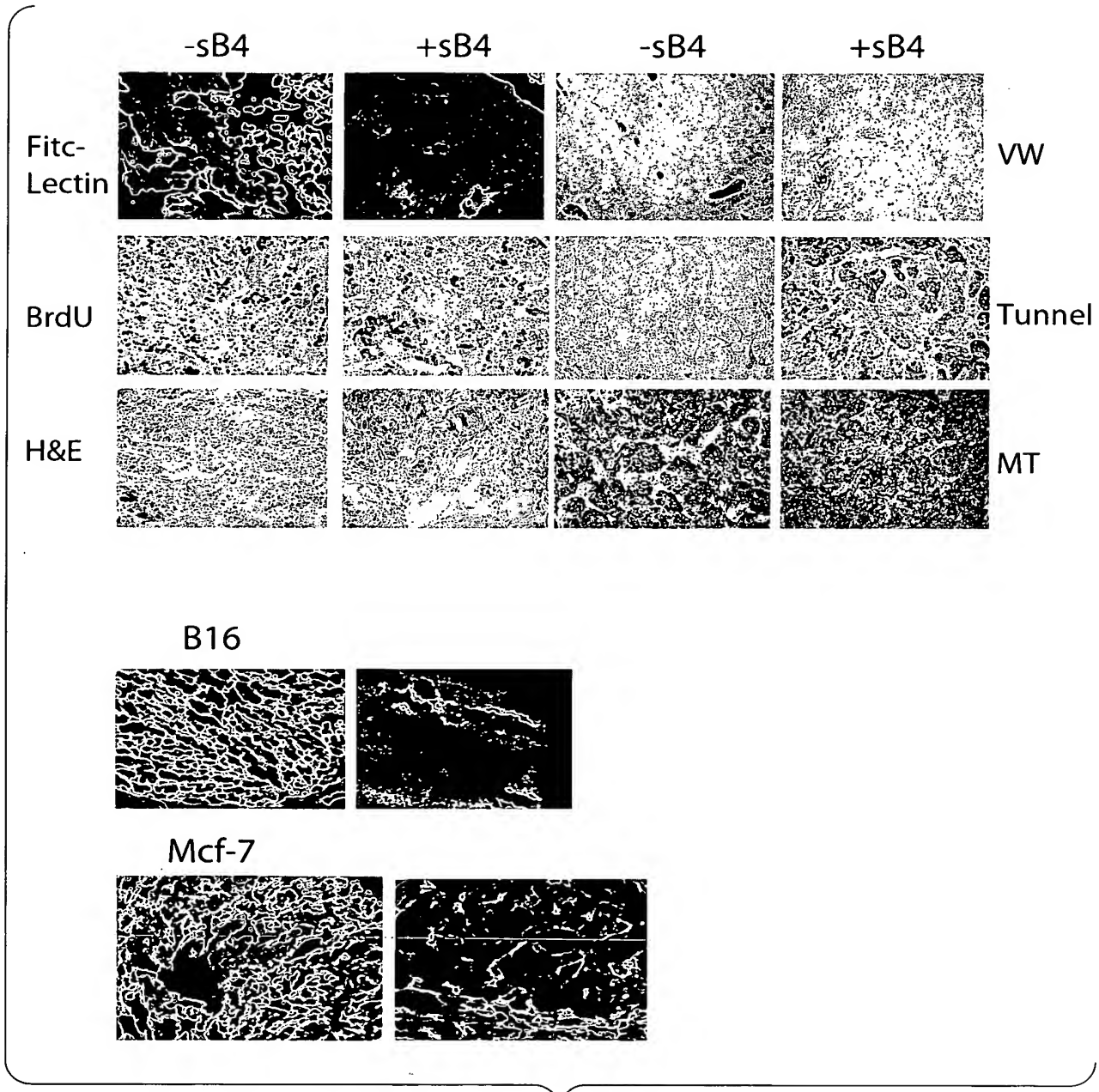


Fig. 26

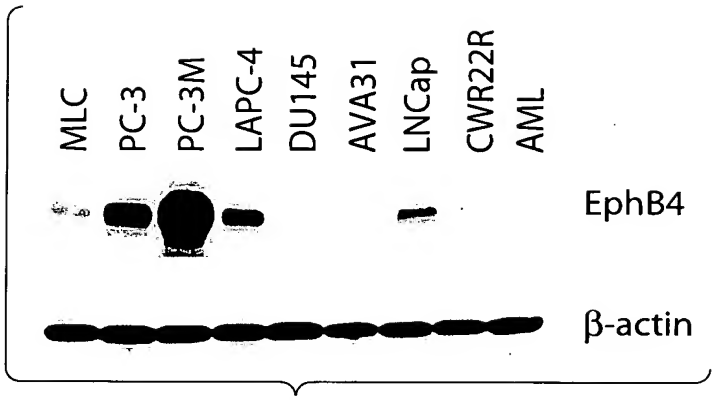


Fig. 27A

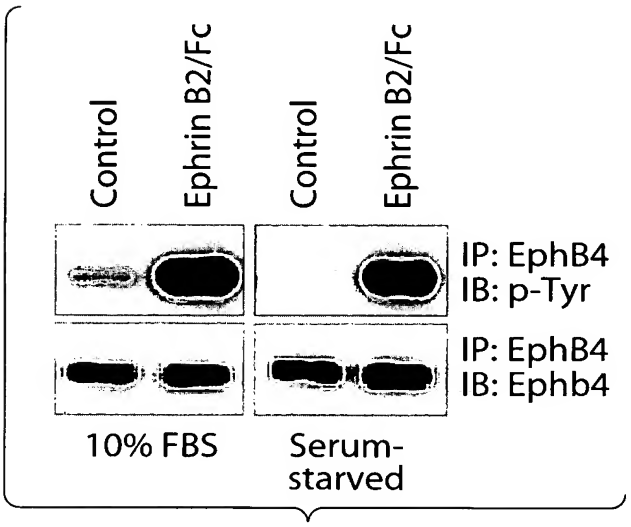
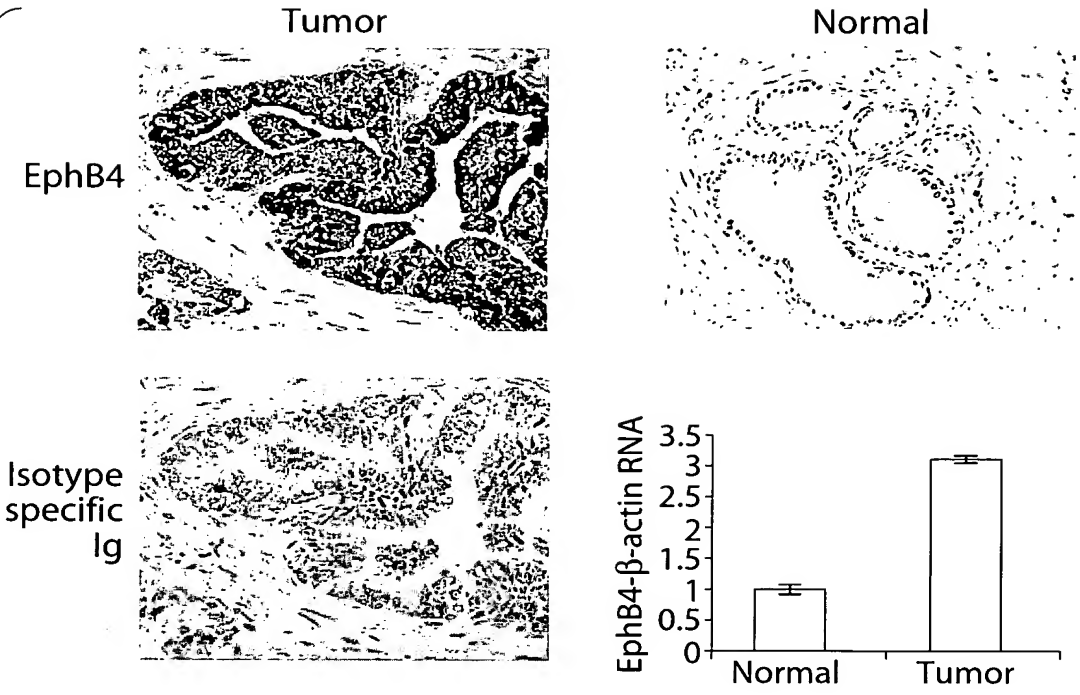


Fig. 27B



EPHB4 staining in prostate tissues array

	negative	positive
Normal (n = 20)	17	3
Tumor (n = 32)	8	24

$P = 3.8 \times 10^{-5}$ χ^2 analysis

Fig. 28

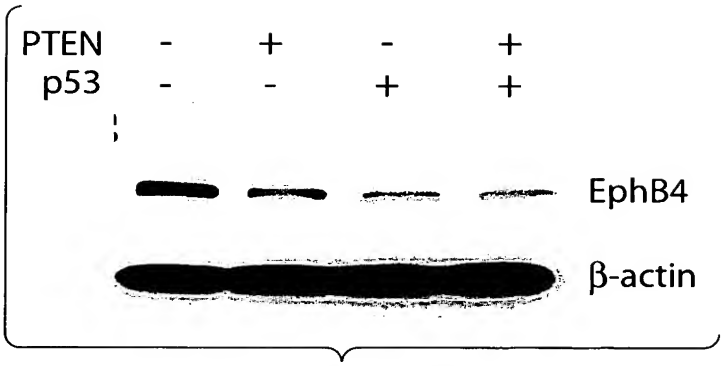


Fig. 29A

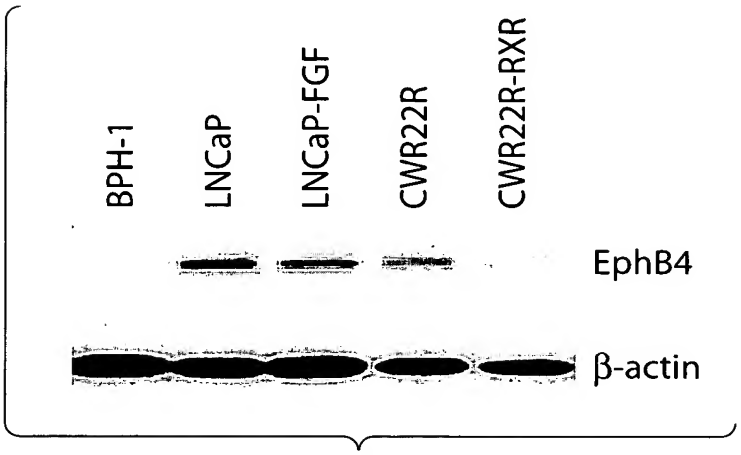


Fig. 29B

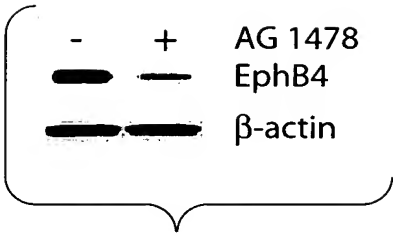


Fig. 30A

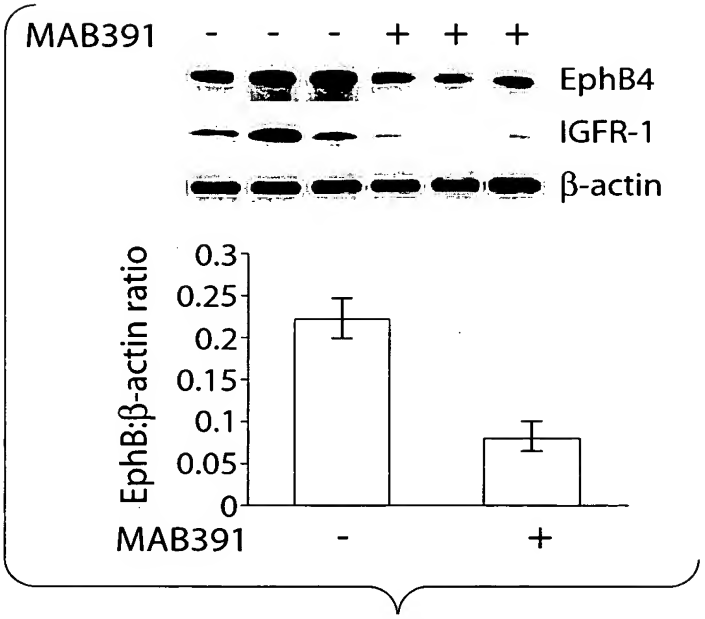


Fig. 30B

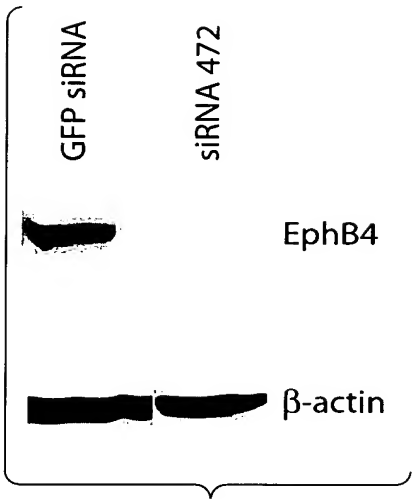


Fig. 31A

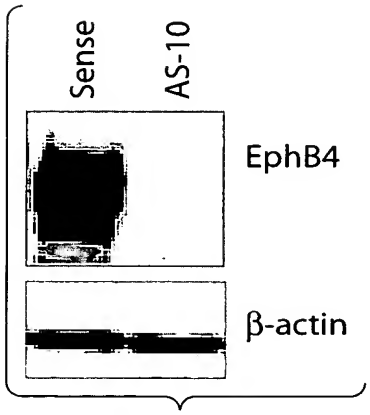


Fig. 31B

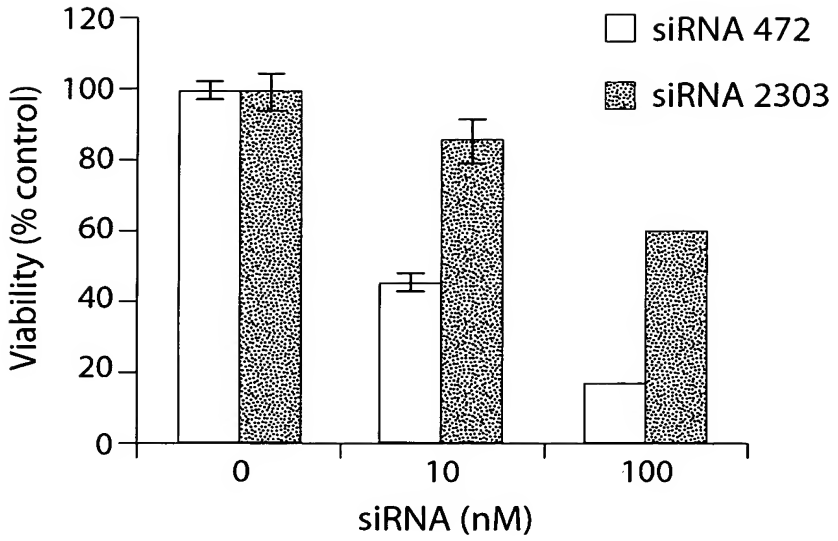


Fig. 31C

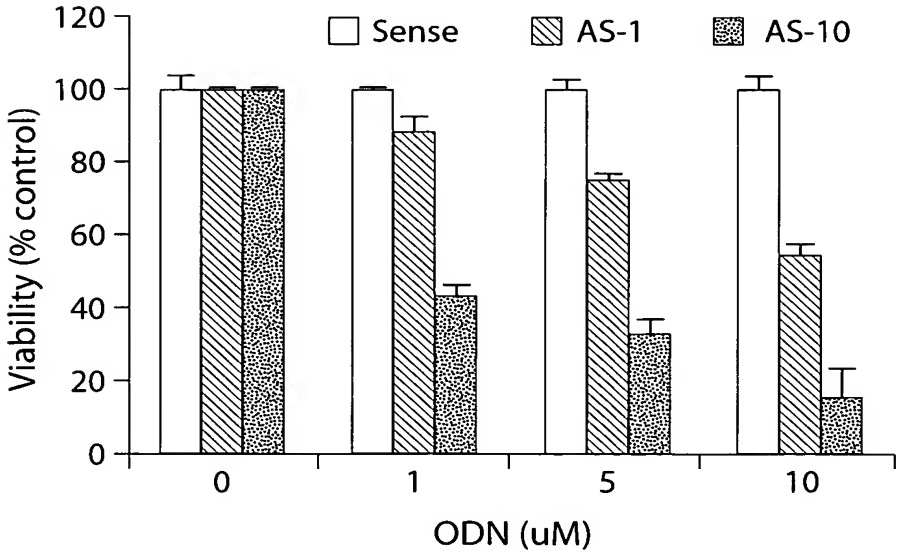


Fig. 31D

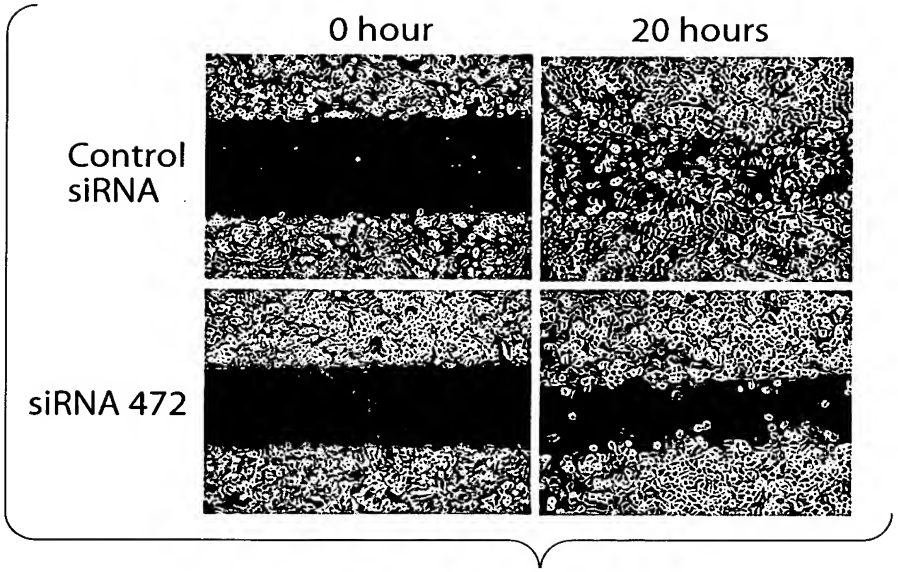


Fig. 31E

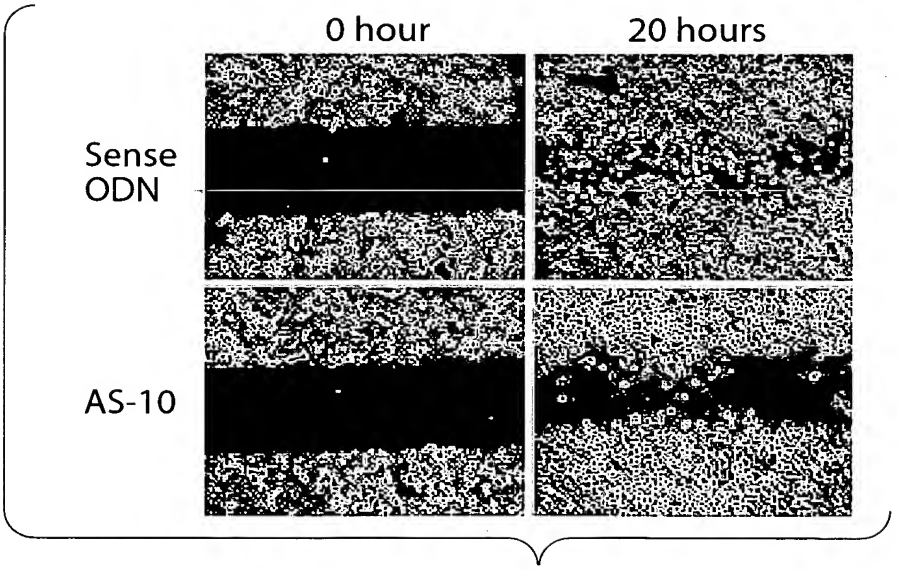


Fig. 31F

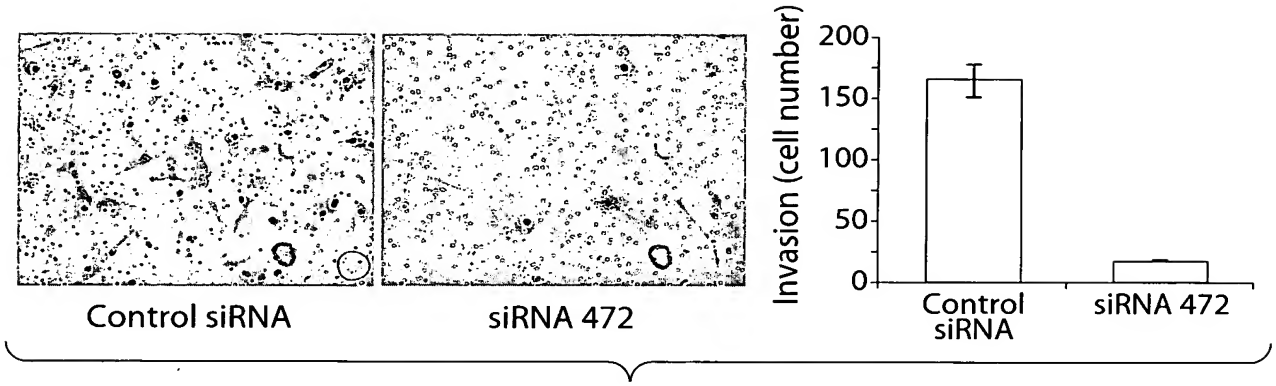

Control siRNA
siRNA 472
Invasion (cell number)
200
150
100
50
0
Control siRNA
siRNA 472

Fig. 31G

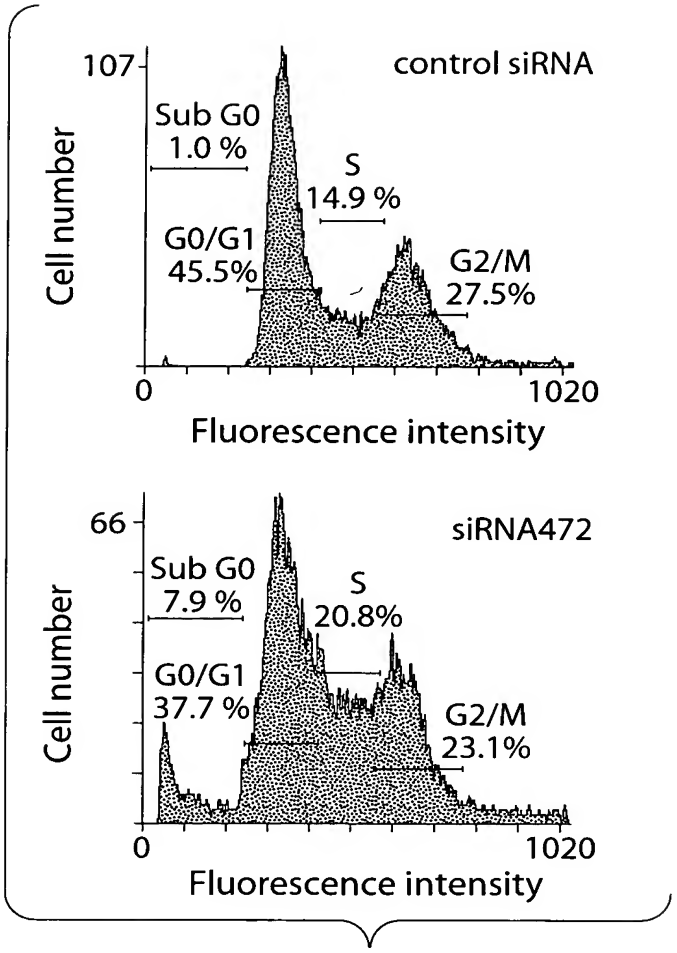


Fig. 32A

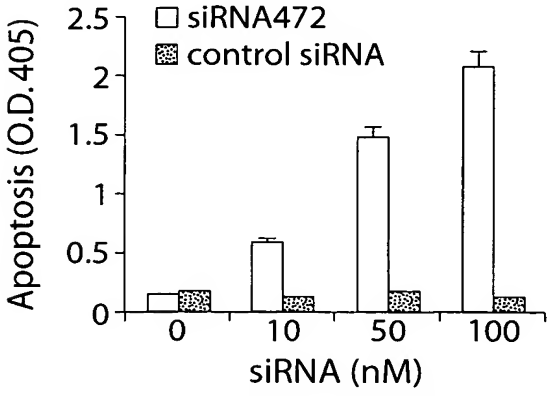


Fig. 32B

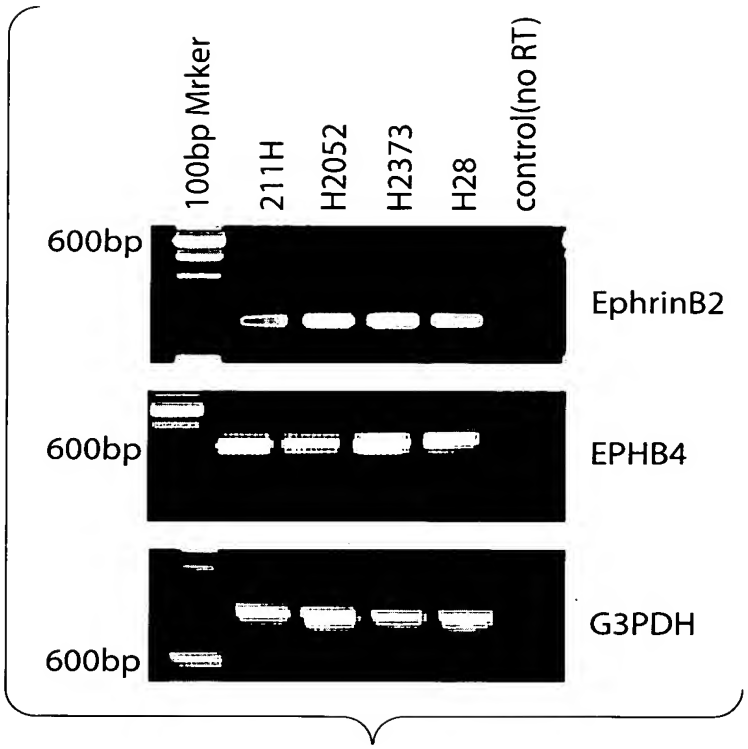


Fig. 33A

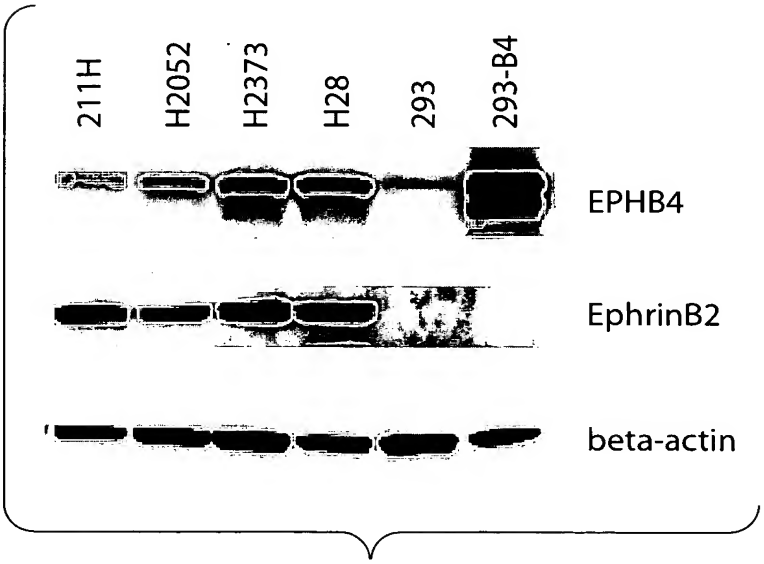


Fig. 33B

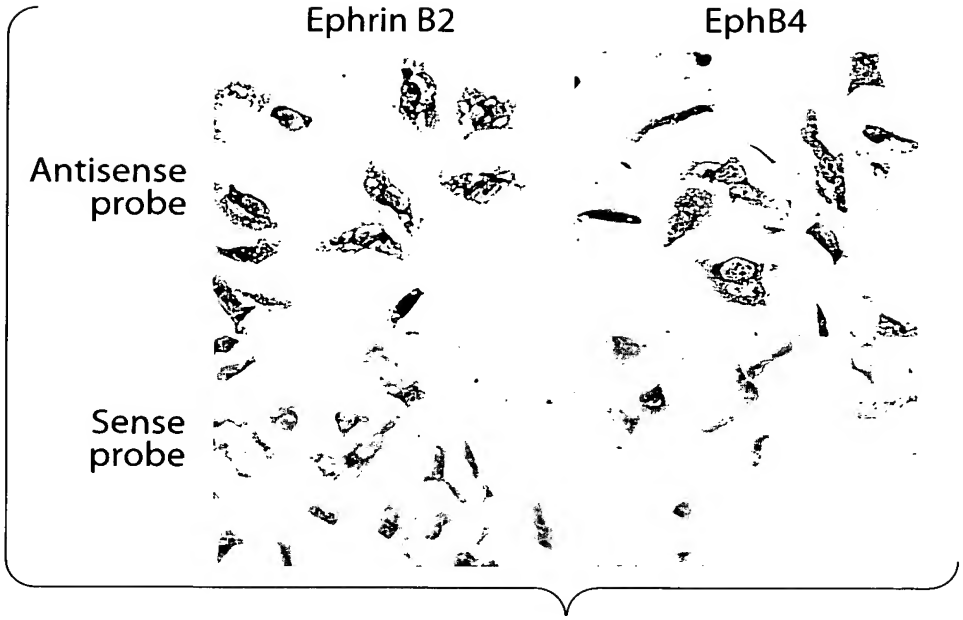


Fig. 34

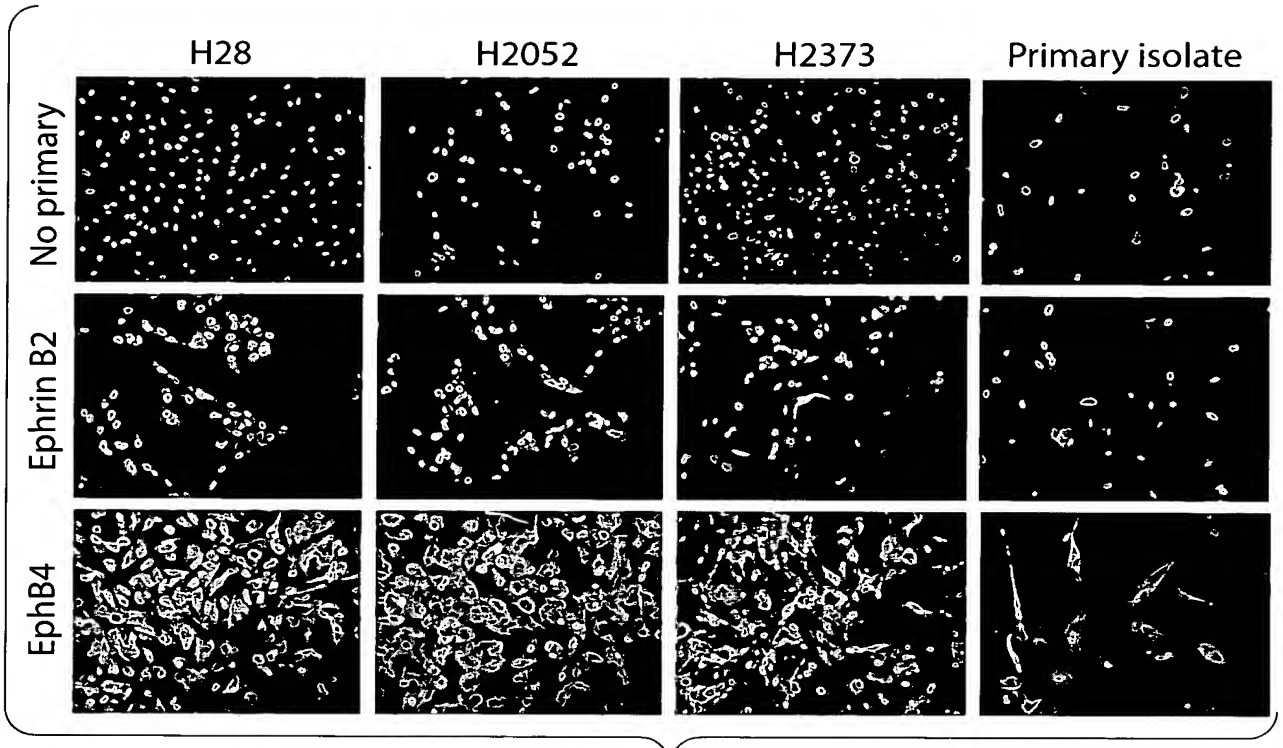


Fig. 35

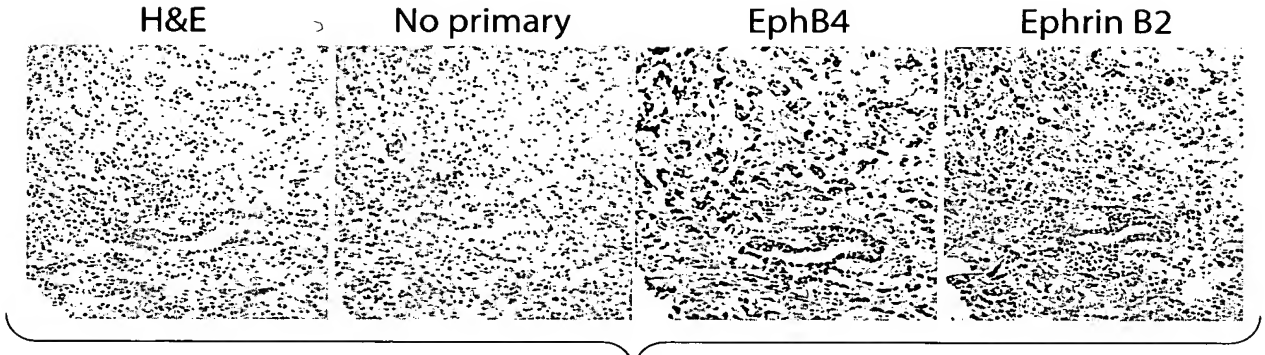


Fig. 36

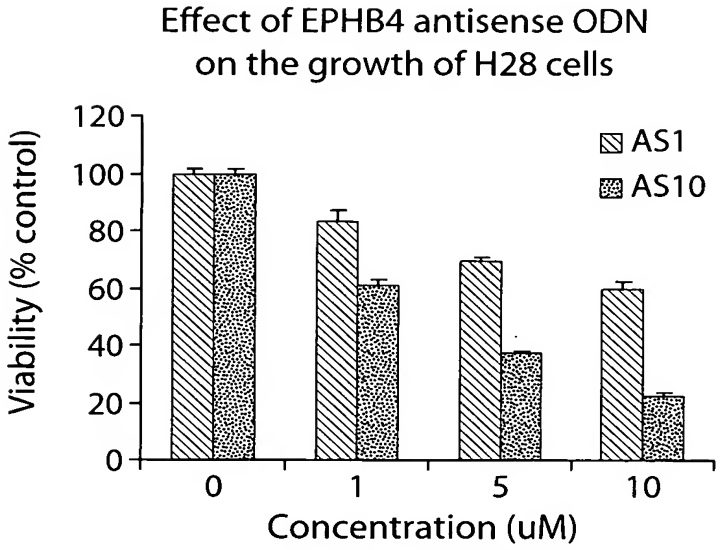


Fig. 37A

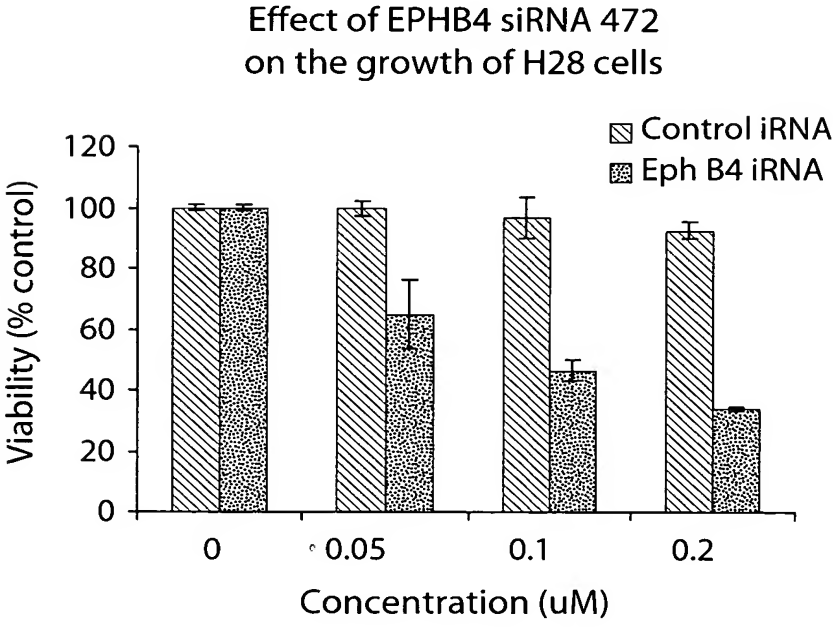


Fig. 37B

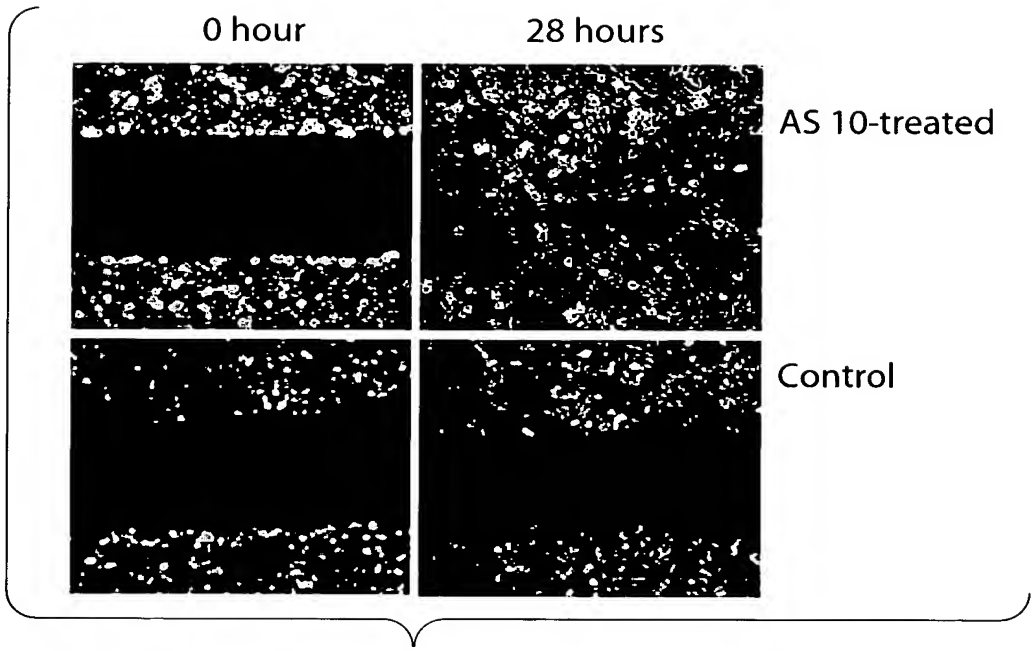


Fig. 38A

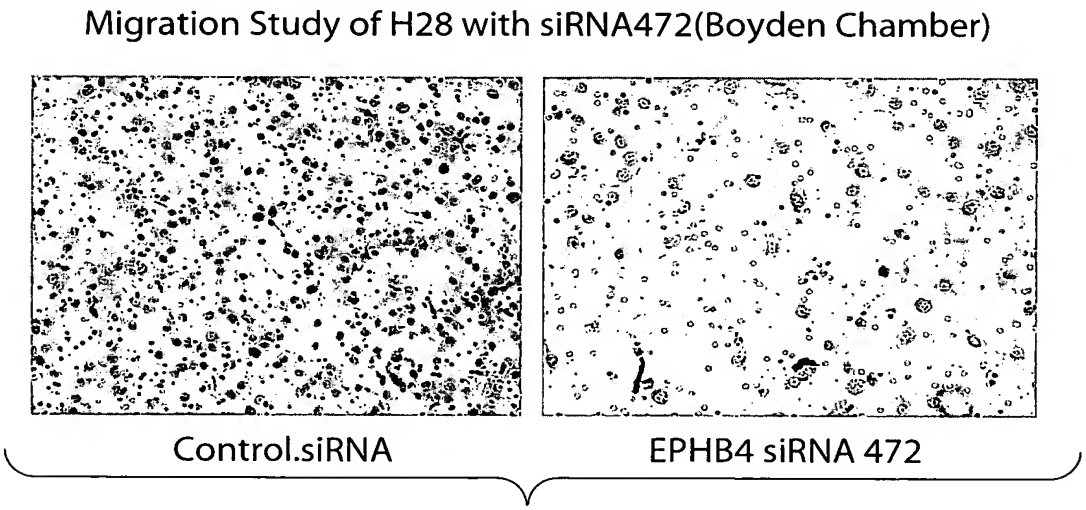


Fig. 38B

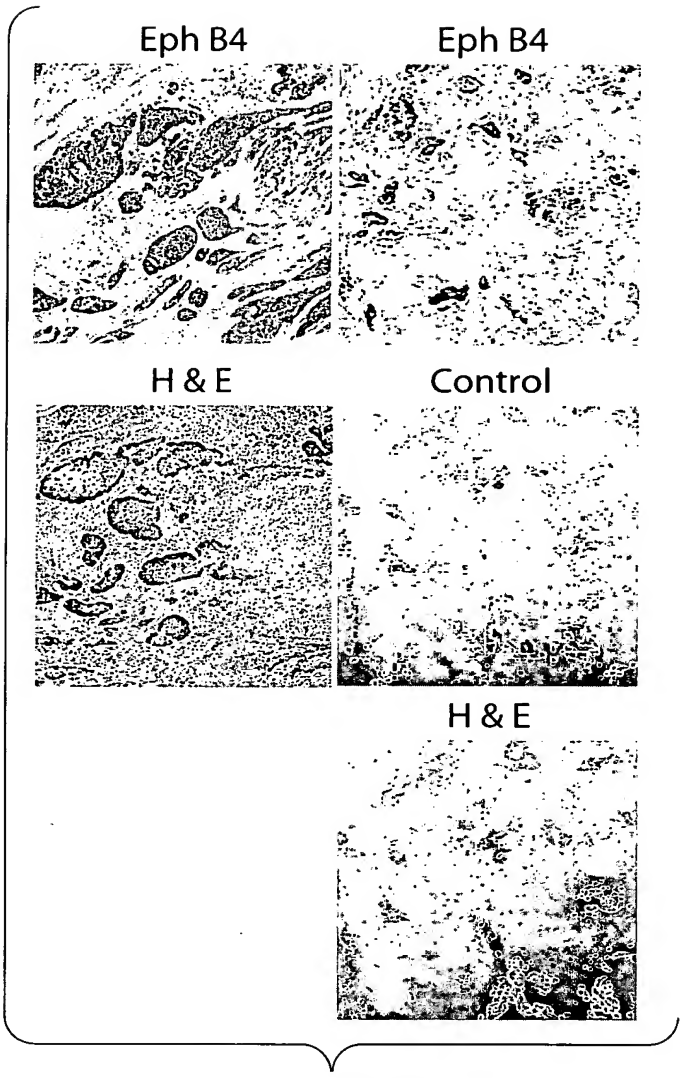


Fig. 39A

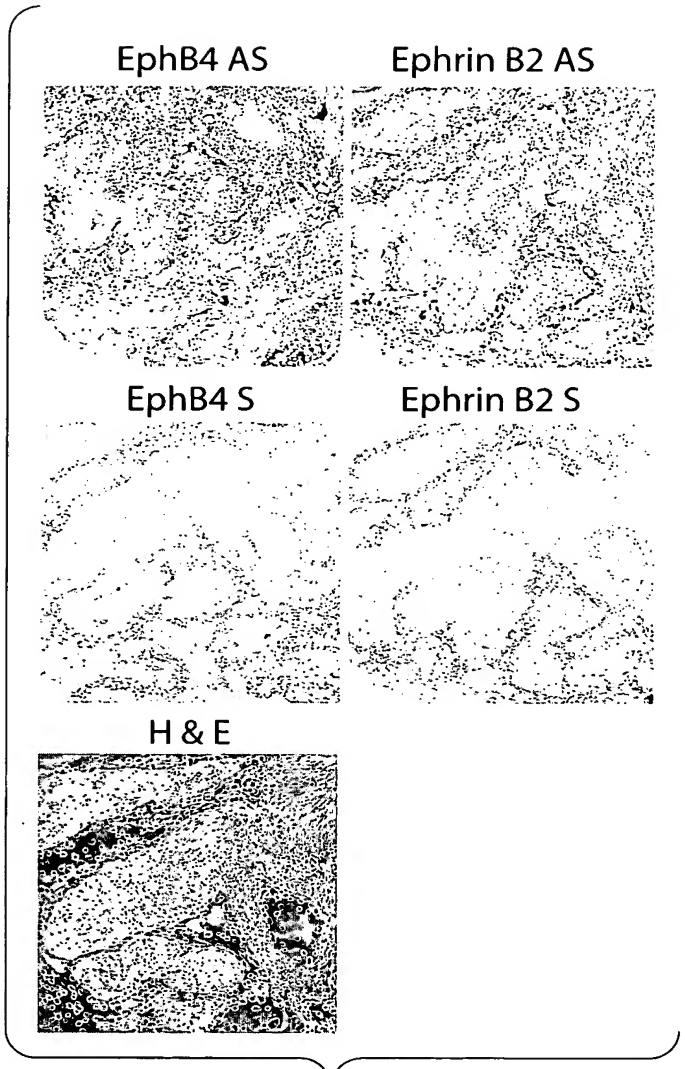


Fig. 39B

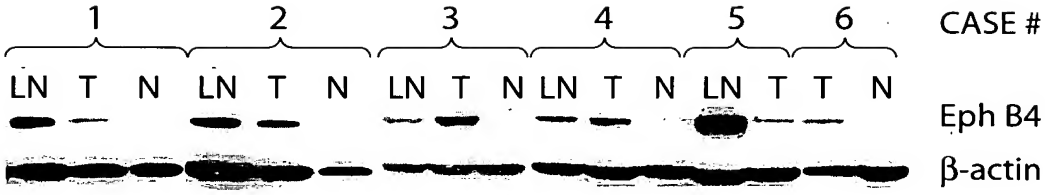


Fig. 39C

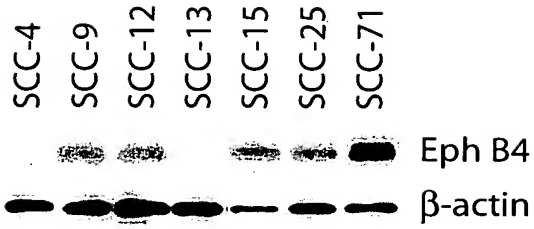


Fig. 40A

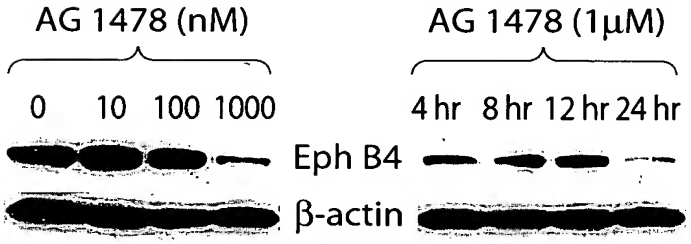


Fig. 40B

Fig. 40C

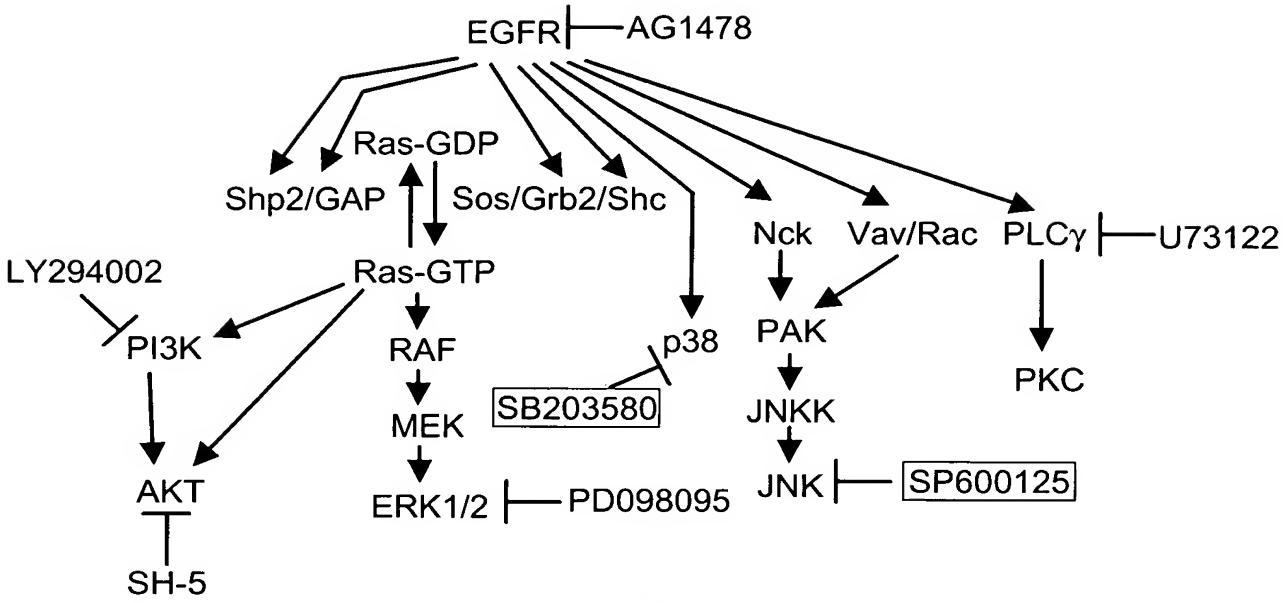


Fig. 41A

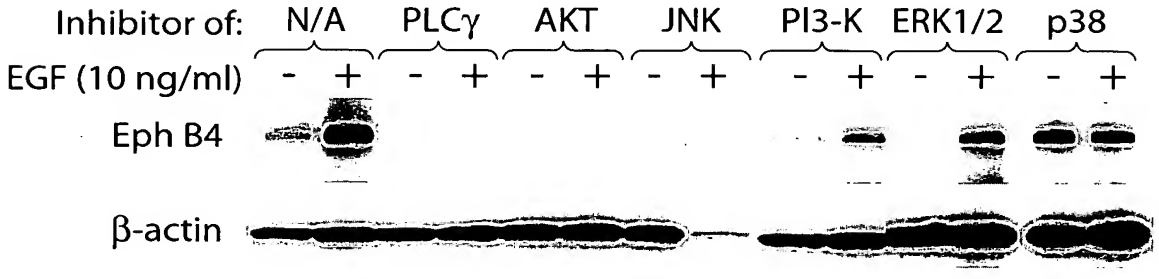


Fig. 41B

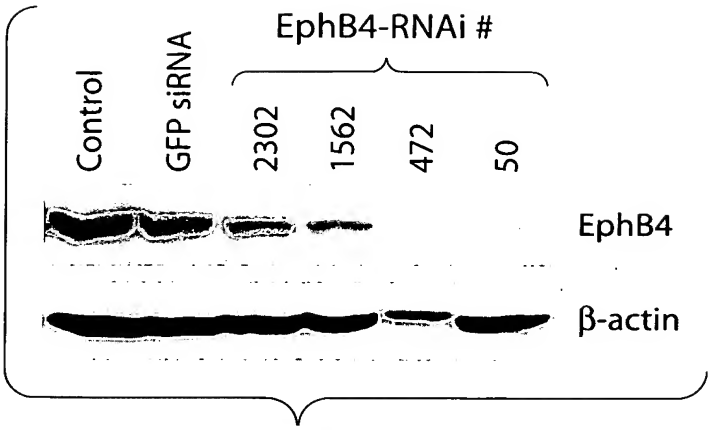


Fig. 42A

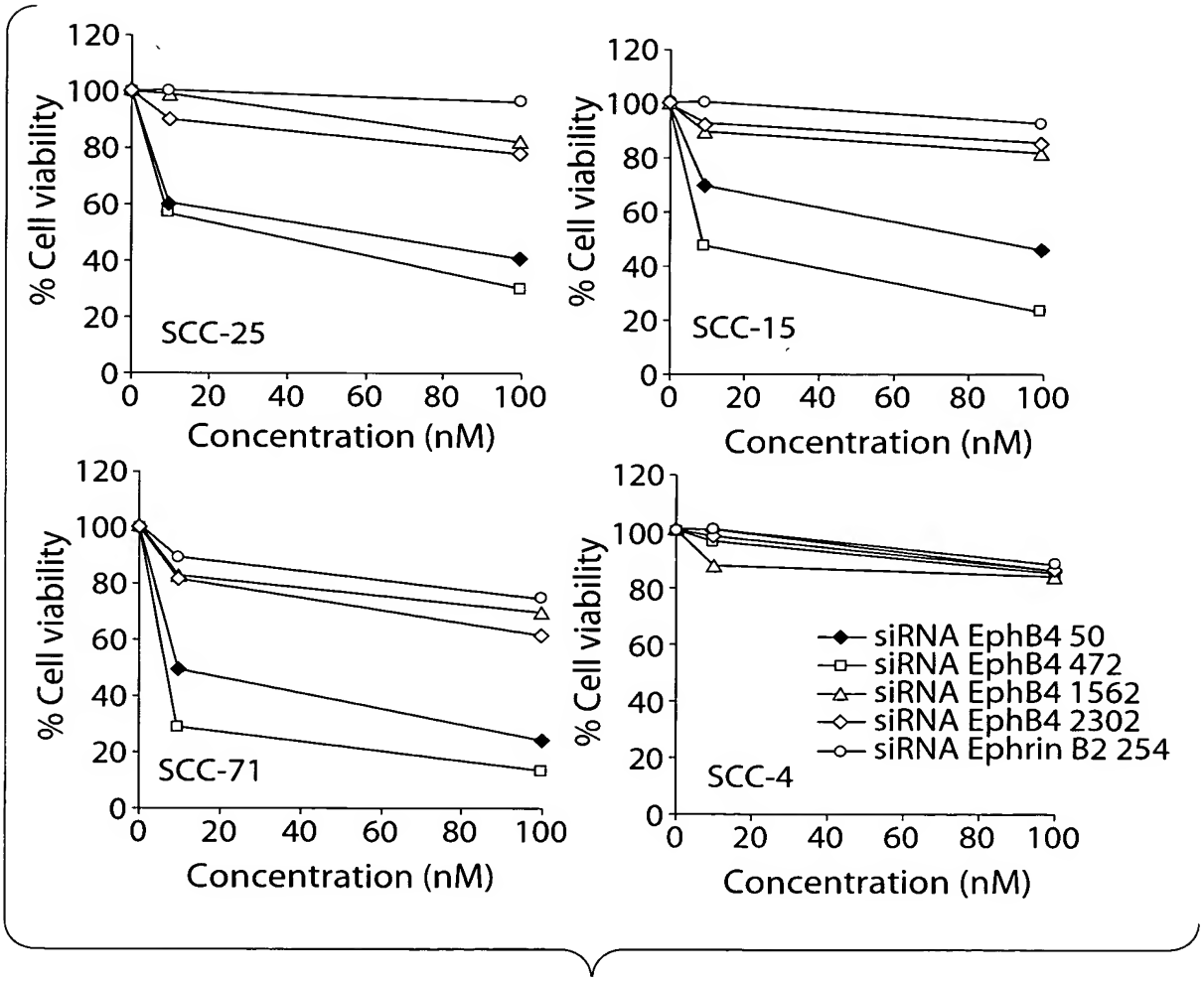


Fig. 42B

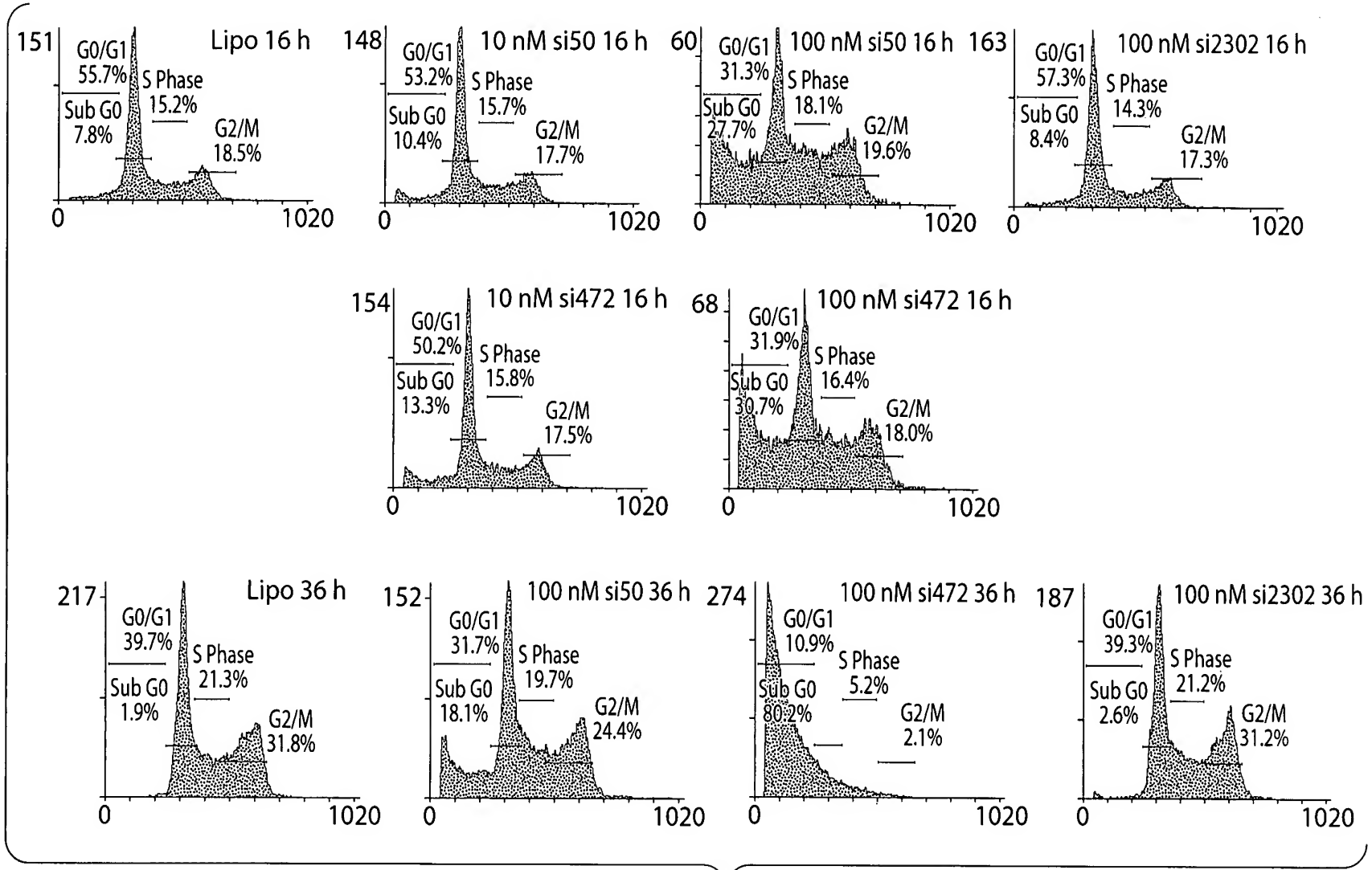

151
Lipo 16 h
G0/G1
55.7%
S Phase
15.2%
Sub G0
7.8%
G2/M
18.5%
0
1020
148
10 nM si50 16 h
G0/G1
53.2%
S Phase
15.7%
Sub G0
10.4%
G2/M
17.7%
0
1020
60
100 nM si50 16 h
G0/G1
31.3%
S Phase
18.1%
Sub G0
27.7%
G2/M
19.6%
0
1020
163
100 nM si2302 16 h
G0/G1
57.3%
S Phase
14.3%
Sub G0
8.4%
G2/M
17.3%
0
1020
154
10 nM si472 16 h
G0/G1
50.2%
S Phase
15.8%
Sub G0
13.3%
G2/M
17.5%
0
1020
68
100 nM si472 16 h
G0/G1
31.9%
S Phase
16.4%
Sub G0
30.7%
G2/M
18.0%
0
1020
217
Lipo 36 h
G0/G1
39.7%
S Phase
21.3%
Sub G0
1.9%
G2/M
31.8%
0
1020
152
100 nM si50 36 h
G0/G1
31.7%
S Phase
19.7%
Sub G0
18.1%
G2/M
24.4%
0
1020
274
100 nM si472 36 h
G0/G1
10.9%
S Phase
5.2%
Sub G0
80.2%
G2/M
2.1%
0
1020
187
100 nM si2302 36 h
G0/G1
39.3%
S Phase
21.2%
Sub G0
2.6%
G2/M
31.2%
0
1020

Fig. 42C

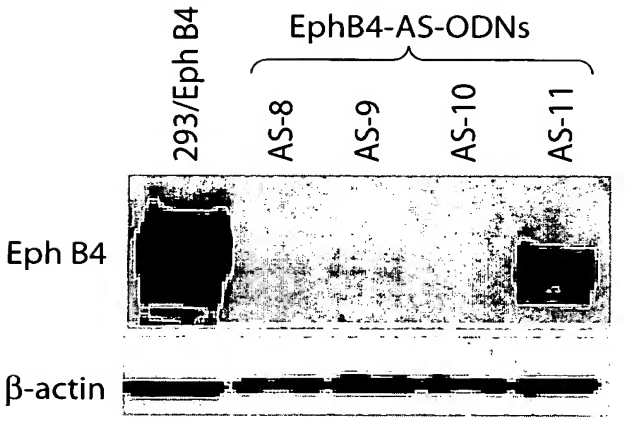


Fig. 43A

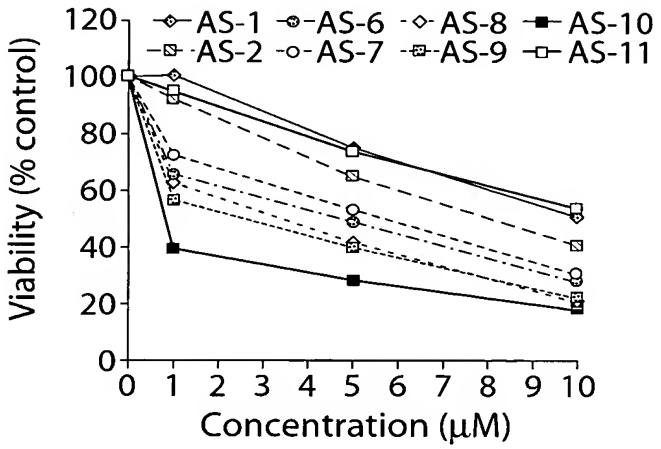


Fig. 43B

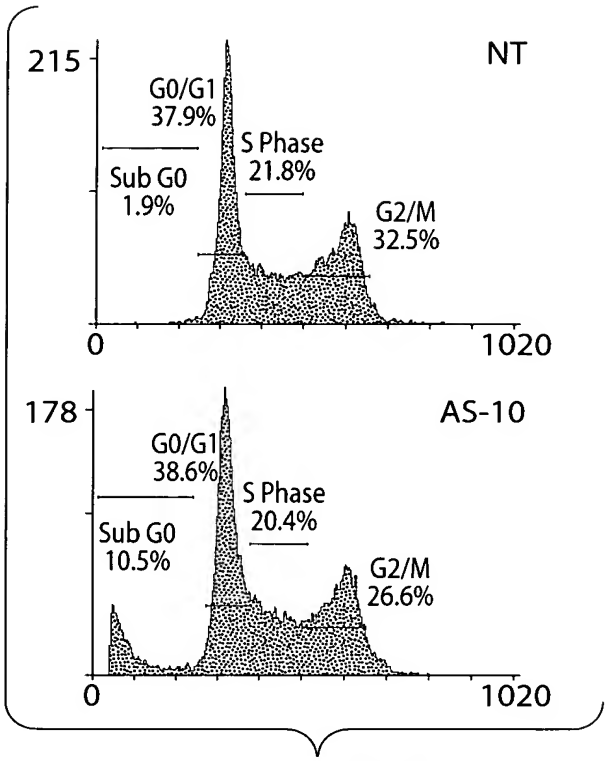

215
NT
G0/G1
37.9%
S Phase
21.8%
Sub G0
1.9%
G2/M
32.5%
0
1020
178
AS-10
G0/G1
38.6%
S Phase
20.4%
Sub G0
10.5%
G2/M
26.6%
0
1020

Fig. 43C

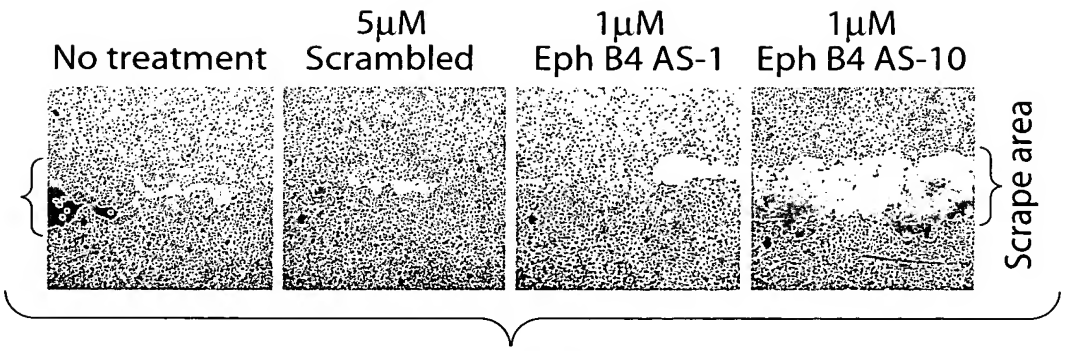


Fig. 43D

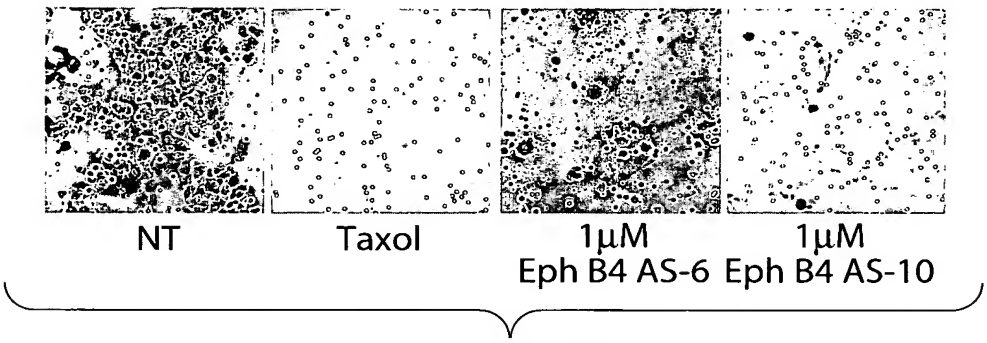


Fig. 43E

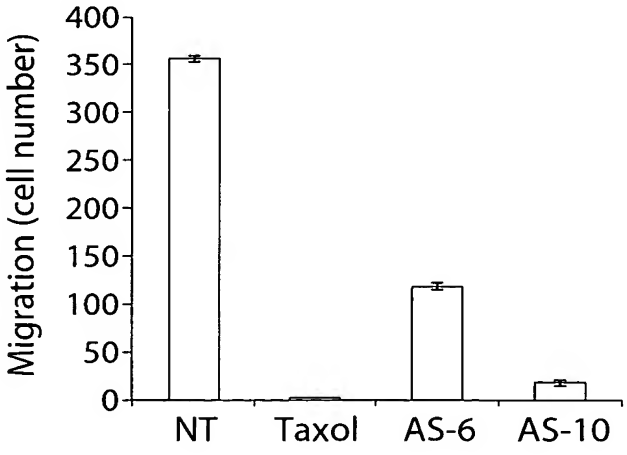


Fig. 43F

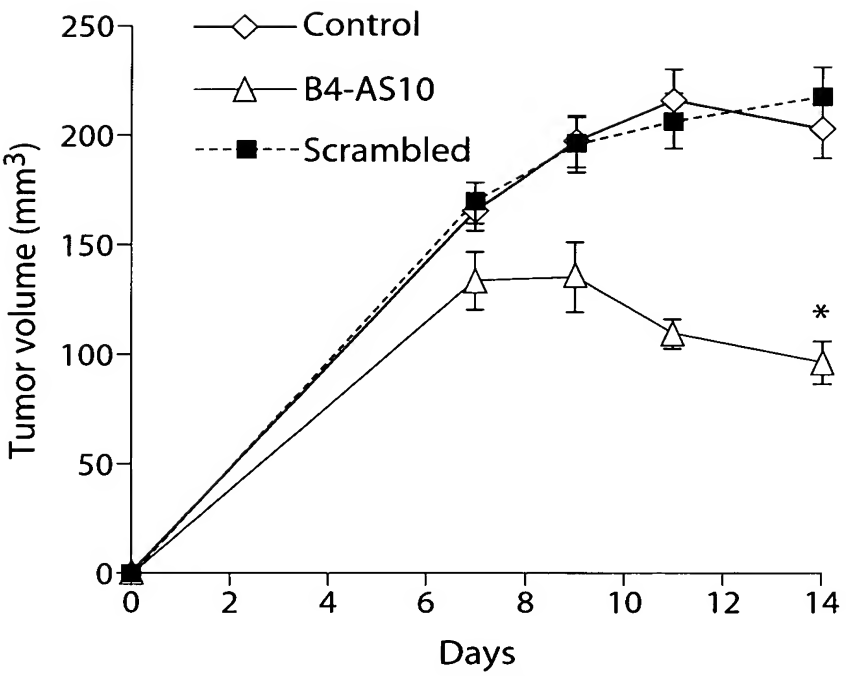

Control
B4-AS10
Scrambled
Tumor volume (mm3)
250
200
150
100
50
0
0
2
4
6
8
10
12
14
Days
*

Fig. 44

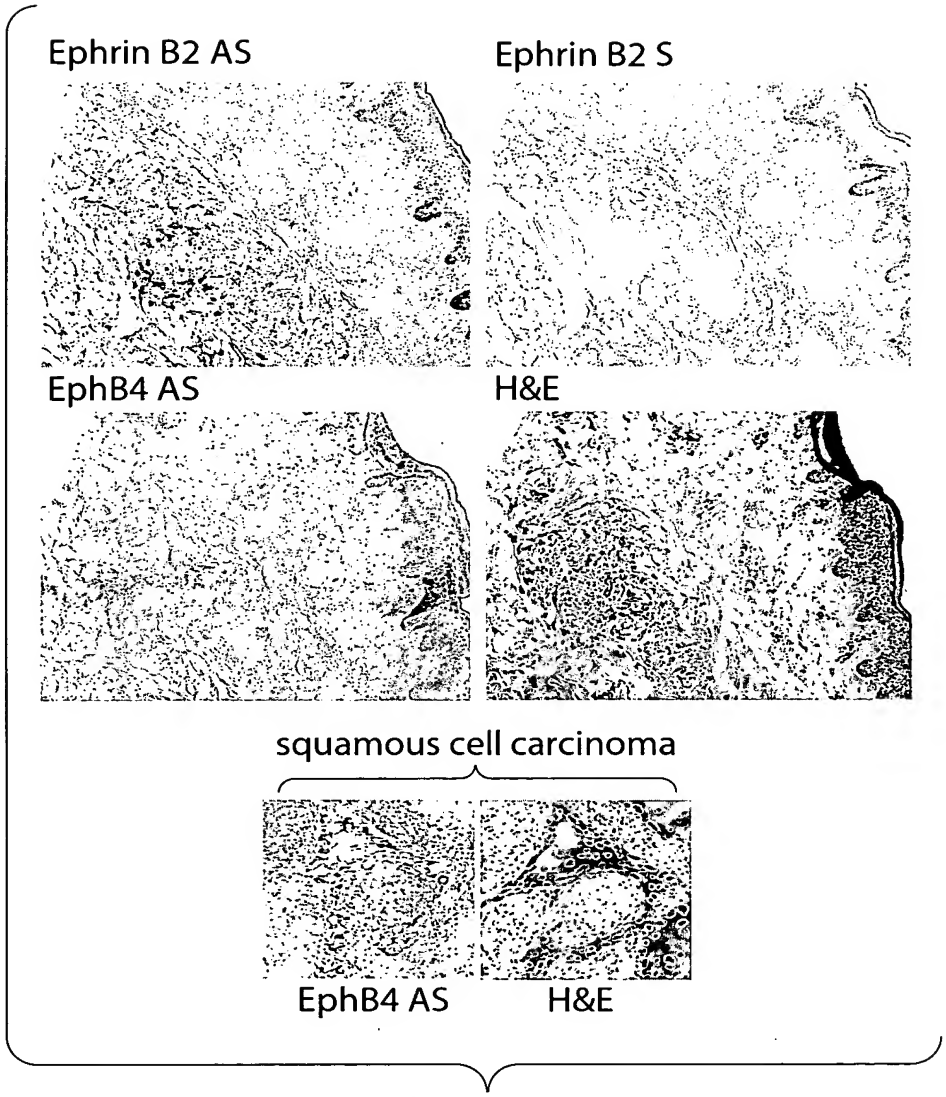

Ephrin B2 AS
Ephrin B2 S
EphB4 AS
H&E
squamous cell carcinoma
EphB4 AS
H&E

Fig. 45A

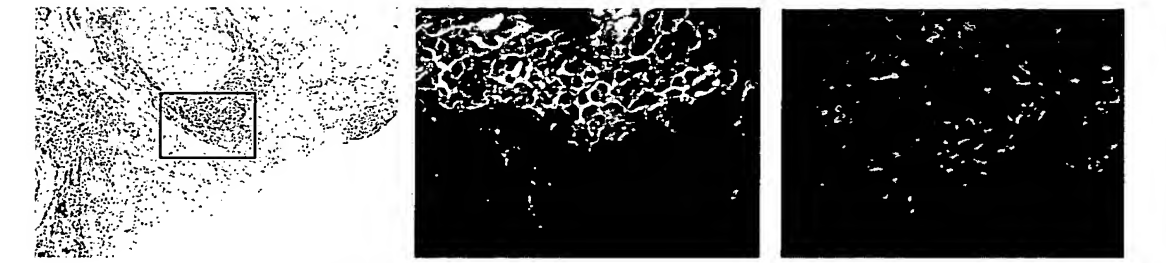


Fig. 45B

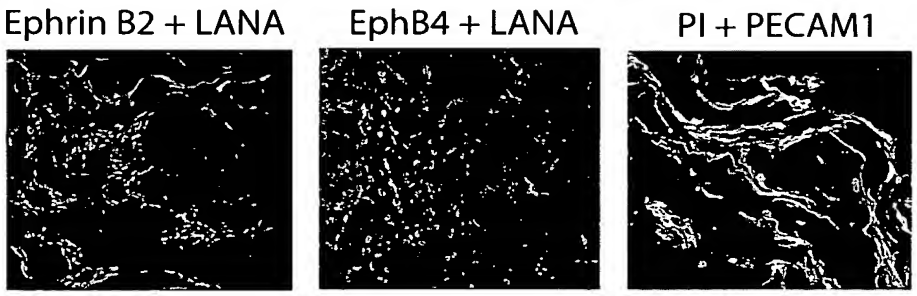


Fig. 45C

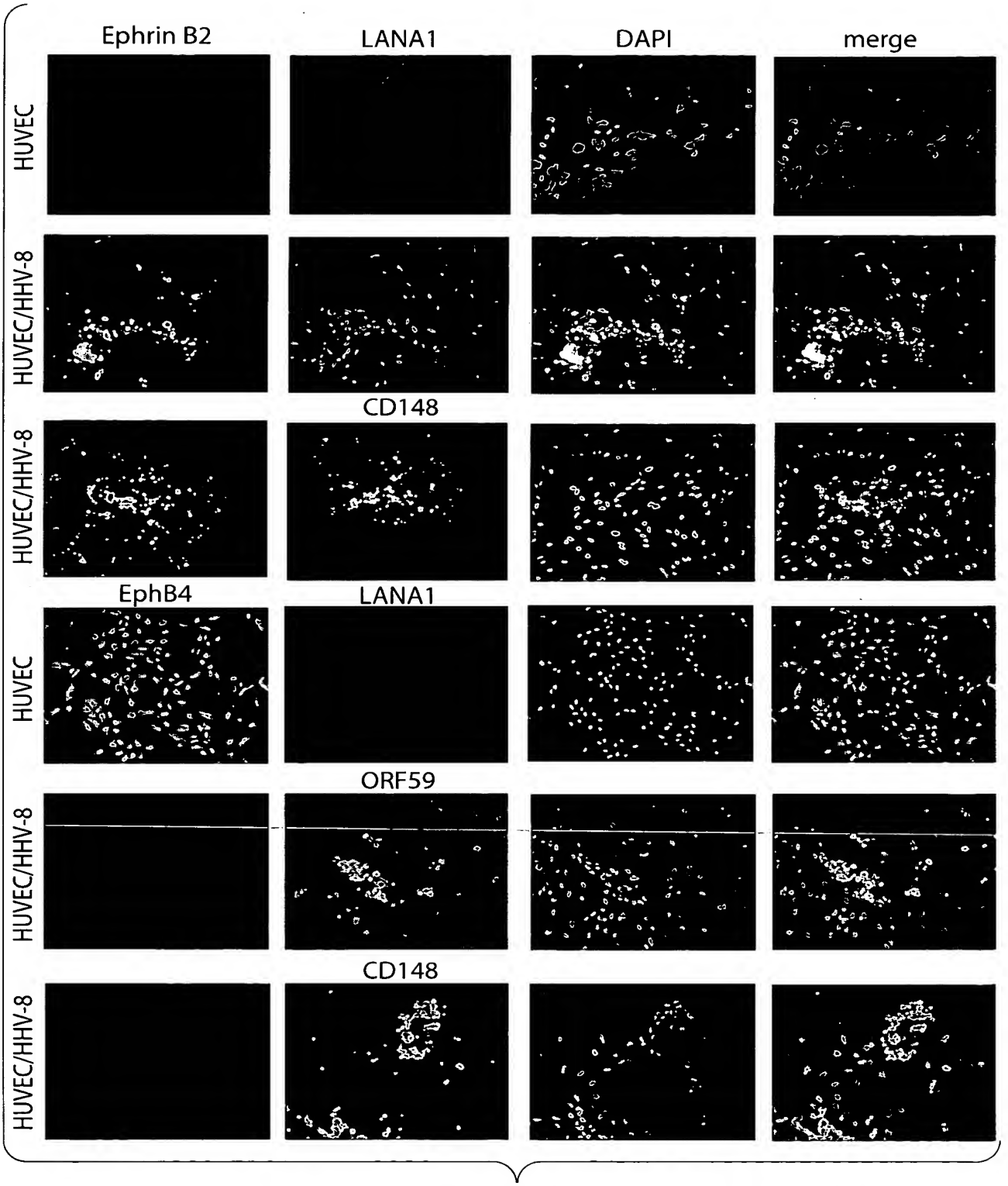

Ephrin B2
LANA1
DAPI
merge
HUVEC
HUVEC/HHV-8
CD148
HUVEC/HHV-8
EphB4
LANA1
HUVEC
ORF59
HUVEC/HHV-8
CD148
HUVEC/HHV-8

Fig. 46A

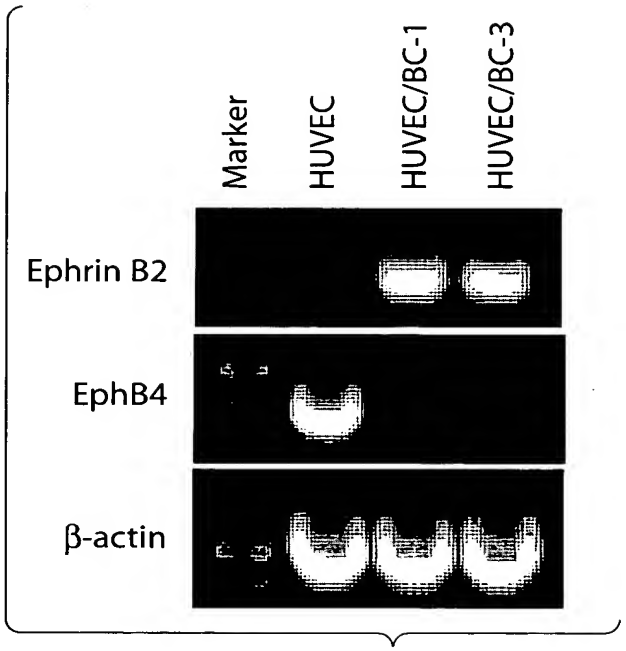


Fig. 46B

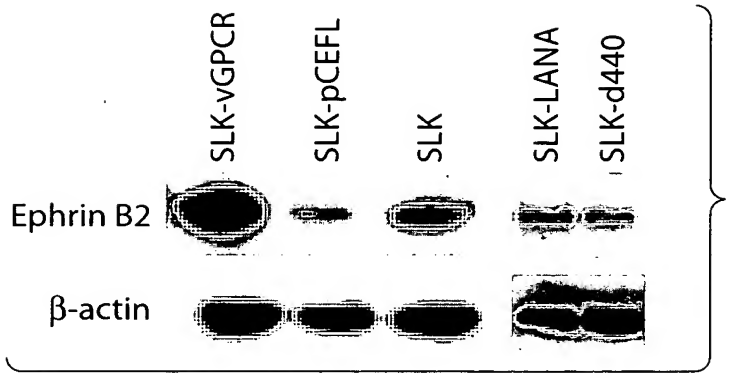


Fig. 47A

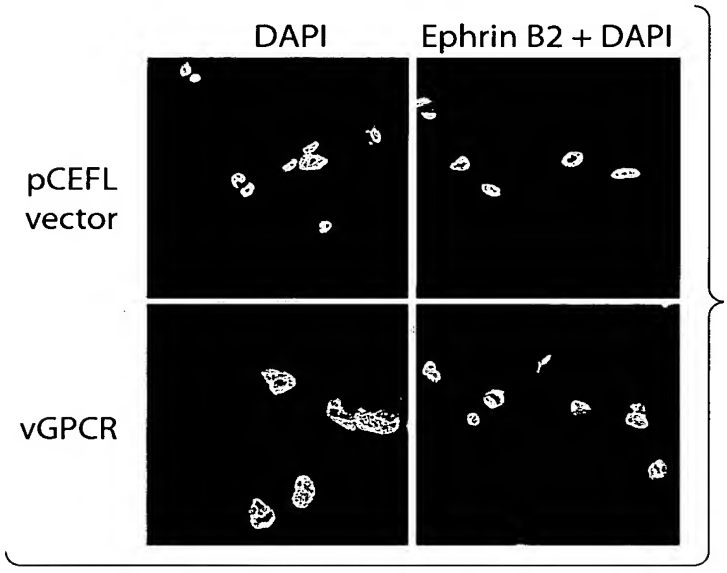


Fig. 47B

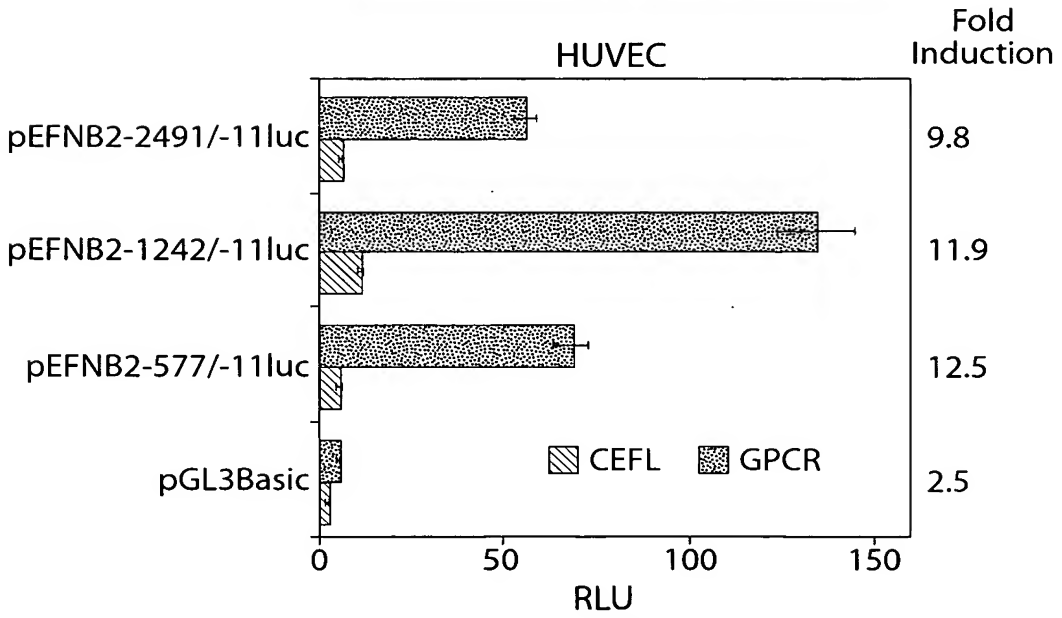


Fig. 47C

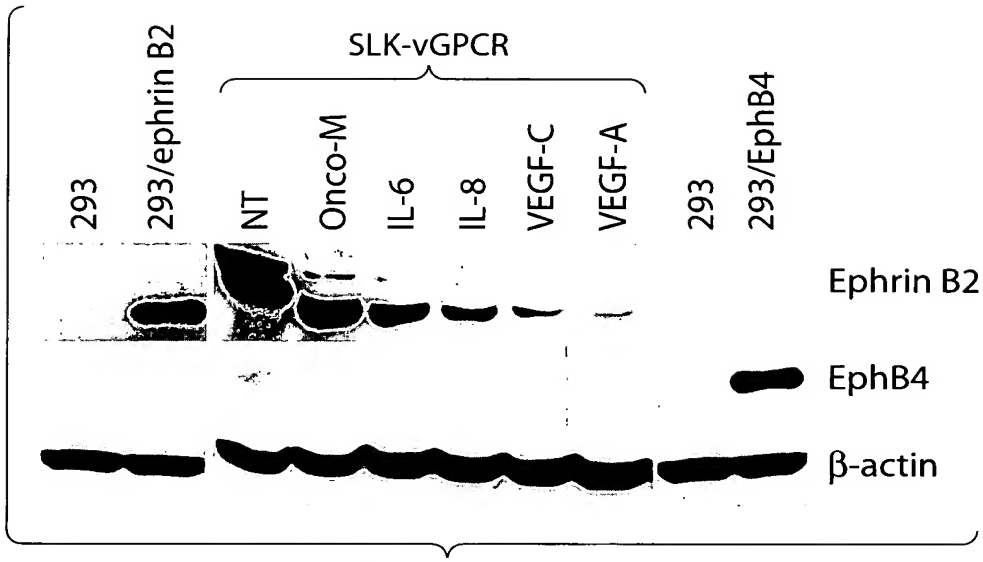


Fig. 48A

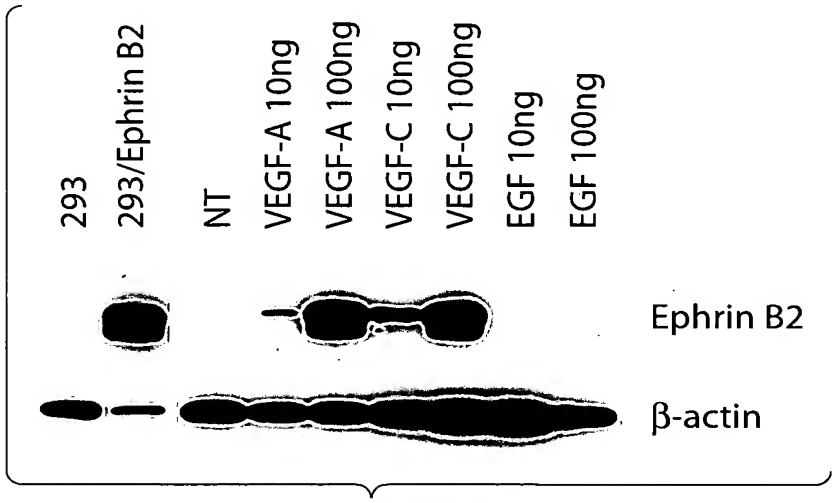


Fig. 48B

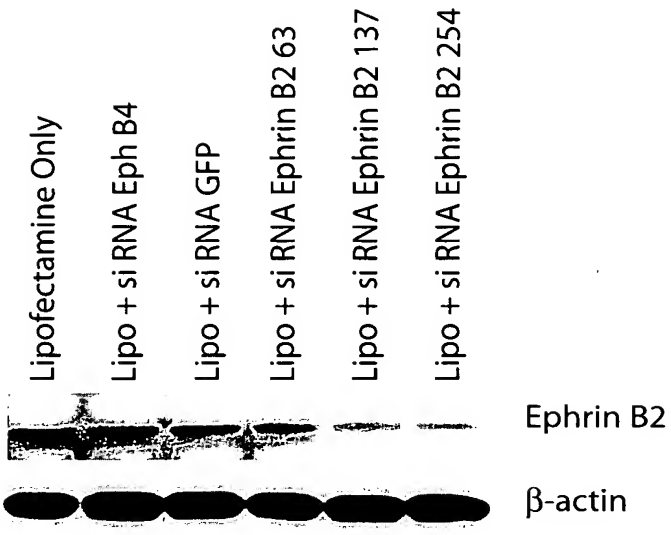


Fig. 49A

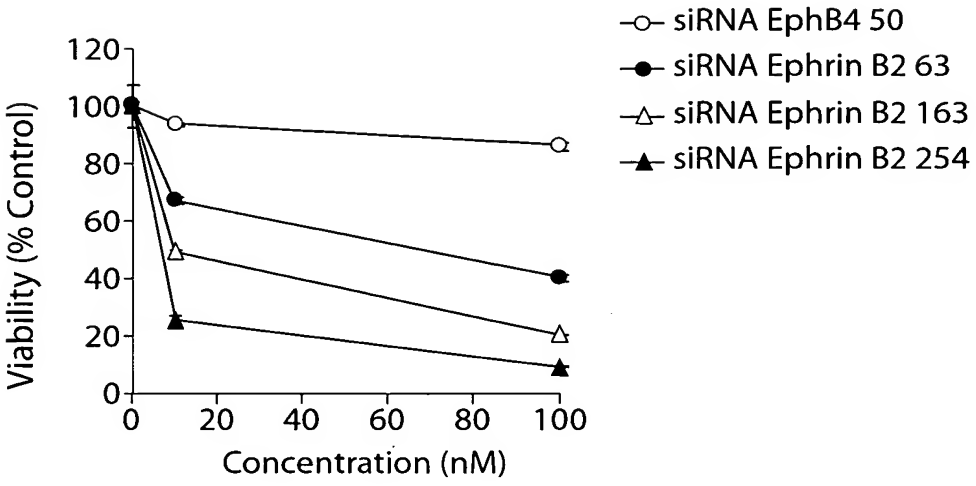


Fig. 49B

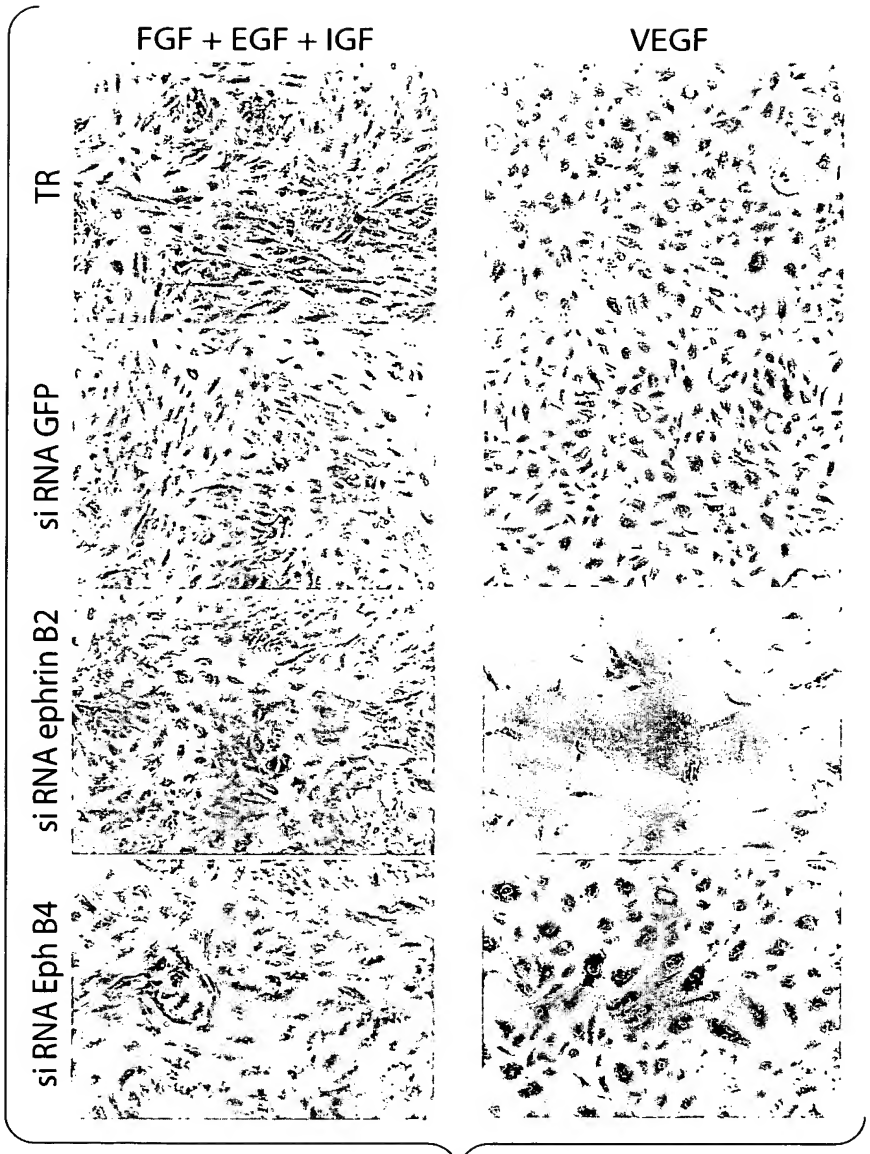


Fig. 49C

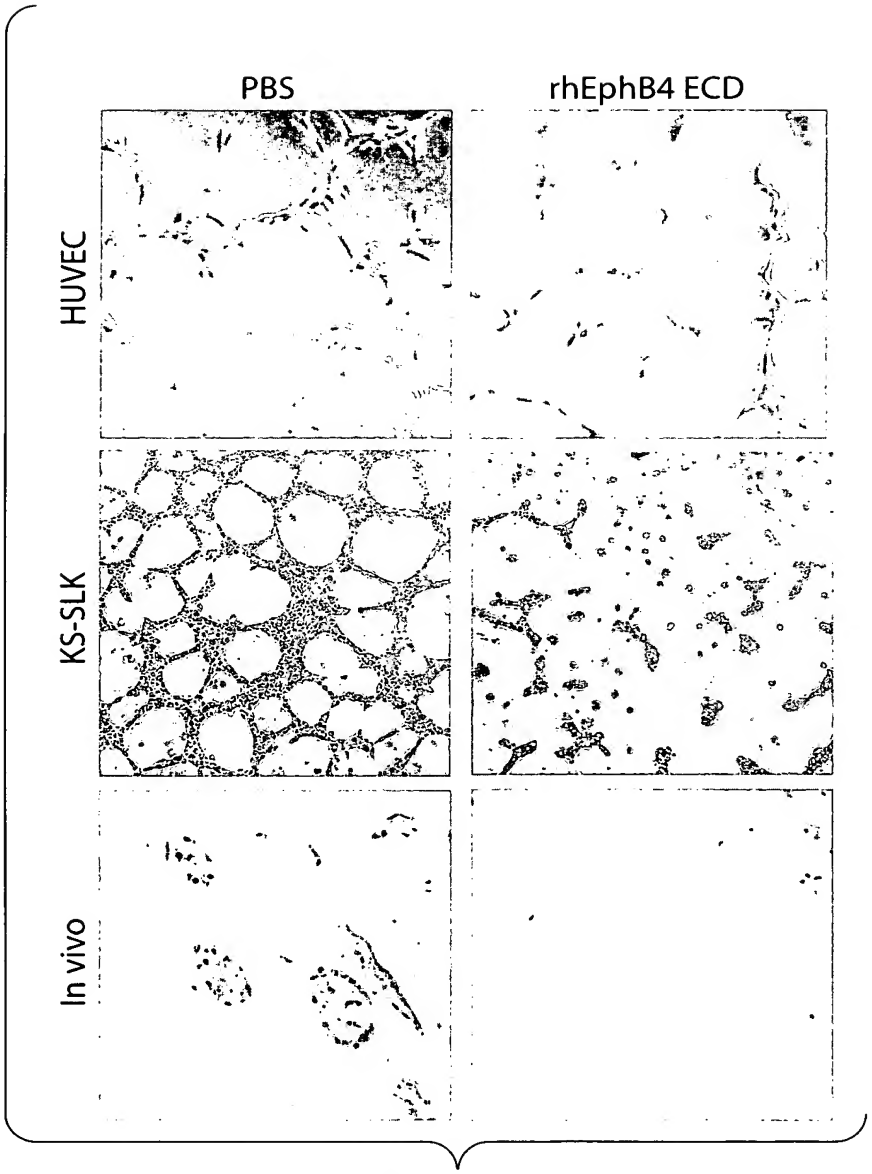


Fig. 50

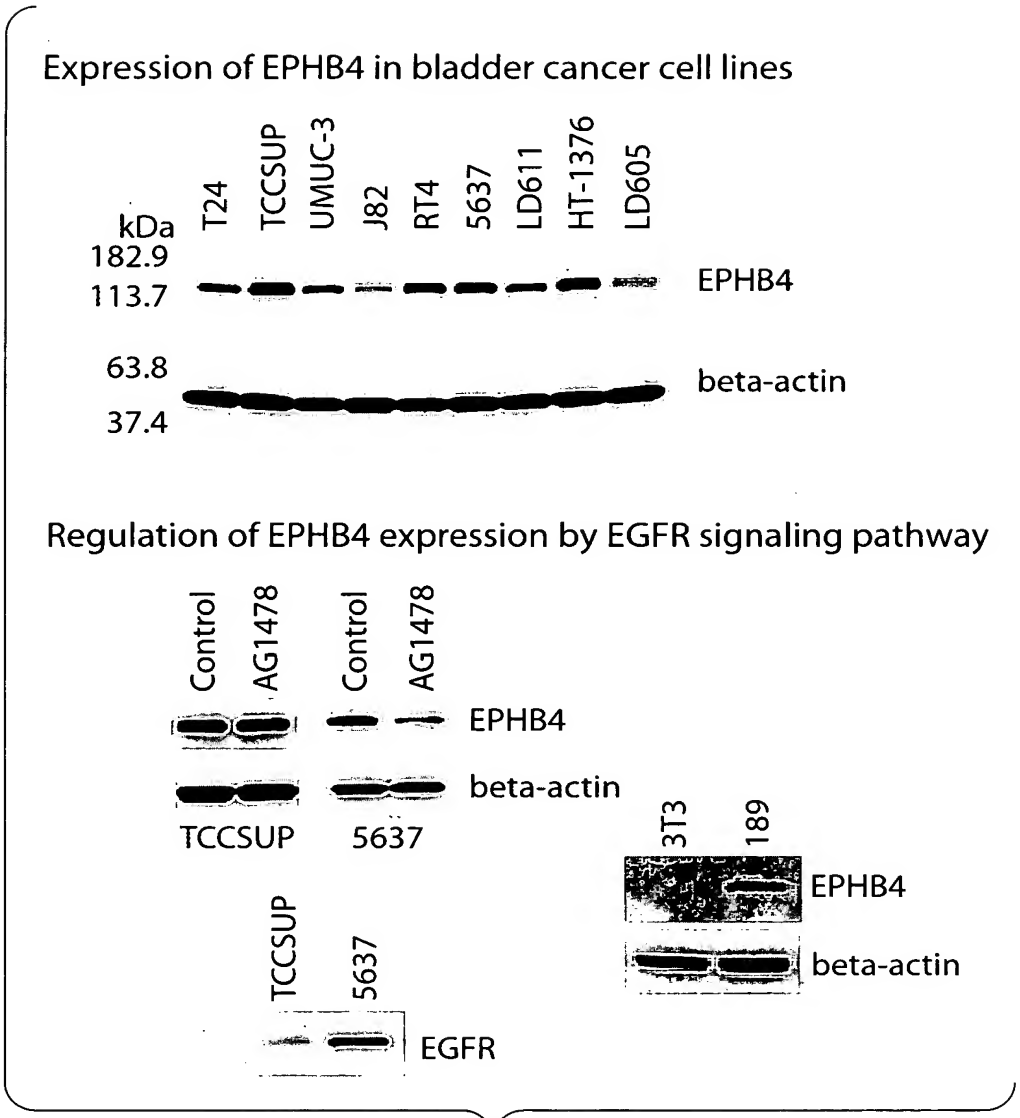

Expression of EPHB4 in bladder cancer cell lines
kDa
T24
TCCSUP
UMUC-3
J82
RT4
5637
LD611
HT-1376
LD605
182.9
113.7
EPHB4
63.8
37.4
beta-actin
Regulation of EPHB4 expression by EGFR signaling pathway
Control
AG1478
Control
AG1478
EPHB4
beta-actin
TCCSUP
5637
3T3
189
EPHB4
beta-actin
TCCSUP
5637
EGFR

Fig. 51

Transfection of p53 inhibit the expression of EPHB4 in 5637 cell

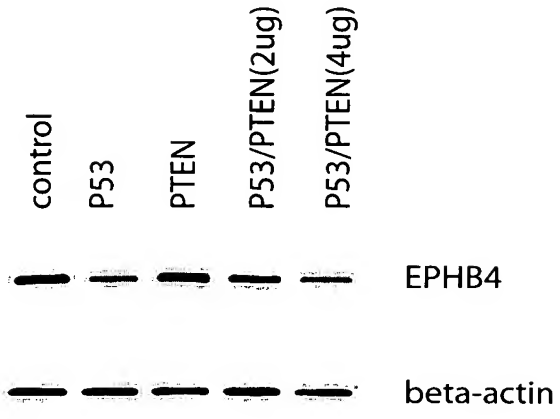


Fig. 52

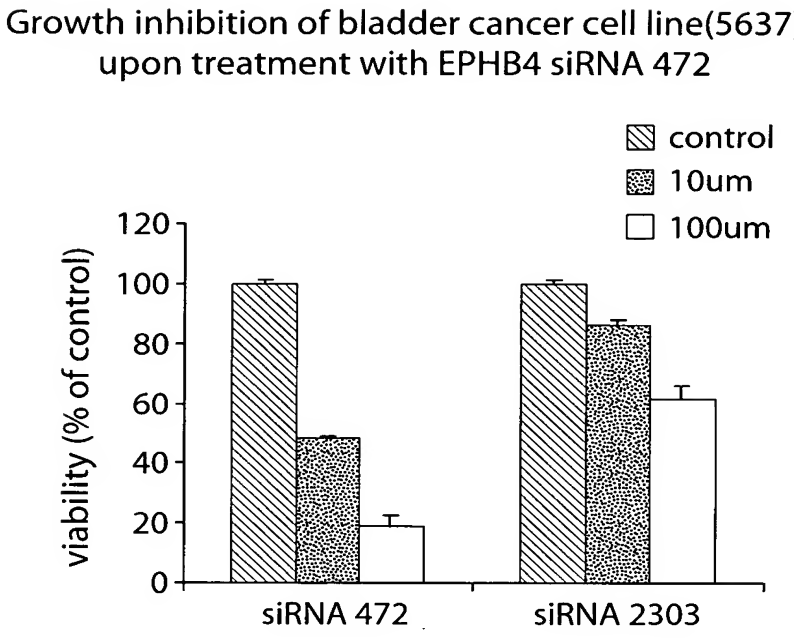

Growth inhibition of bladder cancer cell line(5637)
upon treatment with EPHB4 siRNA 472
control
10um
100um
viability (% of control)
120
100
80
60
40
20
0
siRNA 472
siRNA 2303

Fig. 53

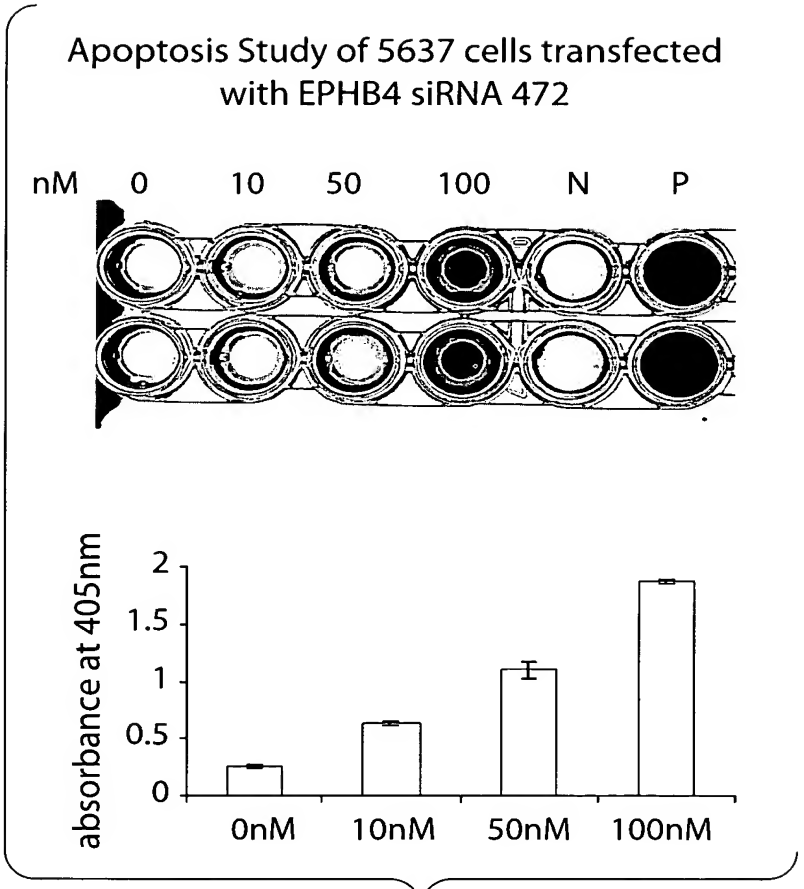

Apoptosis Study of 5637 cells transfected with EPHB4 siRNA 472
nM
0
10
50
100
N
P
absorbance at 405nm
2
1.5
1
0.5
0
0nM
10nM
50nM
100nM

Fig. 54

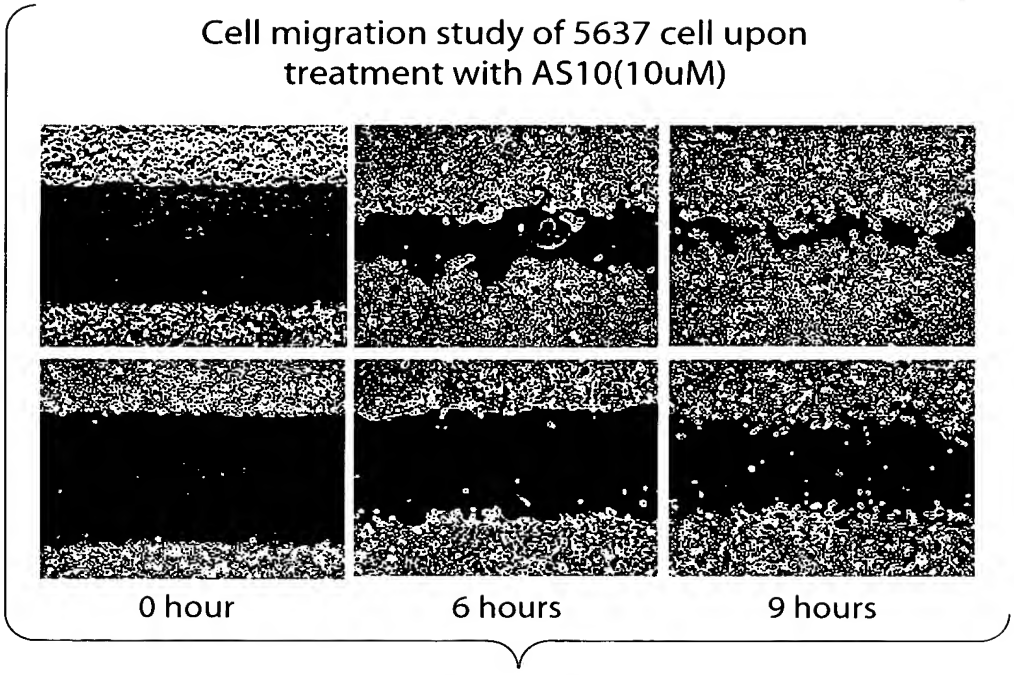

Cell migration study of 5637 cell upon treatment with AS10(10uM)
0 hour
6 hours
9 hours

Fig. 55

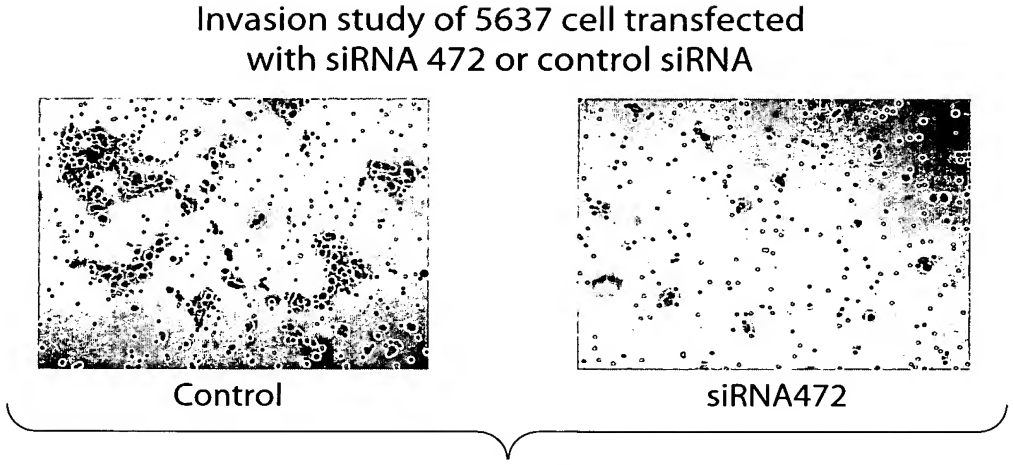

Invasion study of 5637 cell transfected
with siRNA 472 or control siRNA
Control
siRNA472

Fig. 56

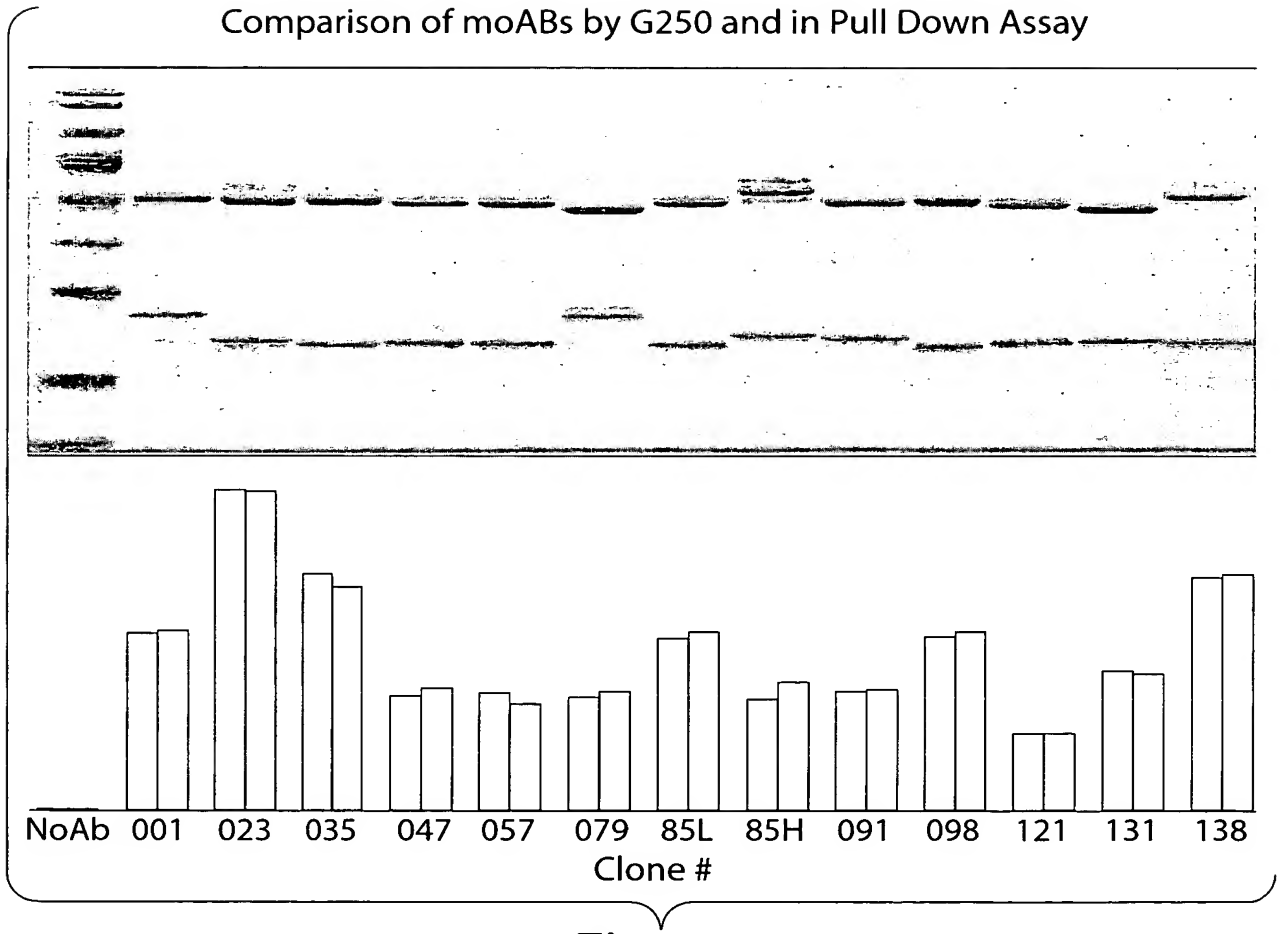

Comparison of moABs by G250 and in Pull Down Assay
NoAb
001
023
035
047
057
079
85L
85H
091
098
121
131
138
Clone #

Fig. 57

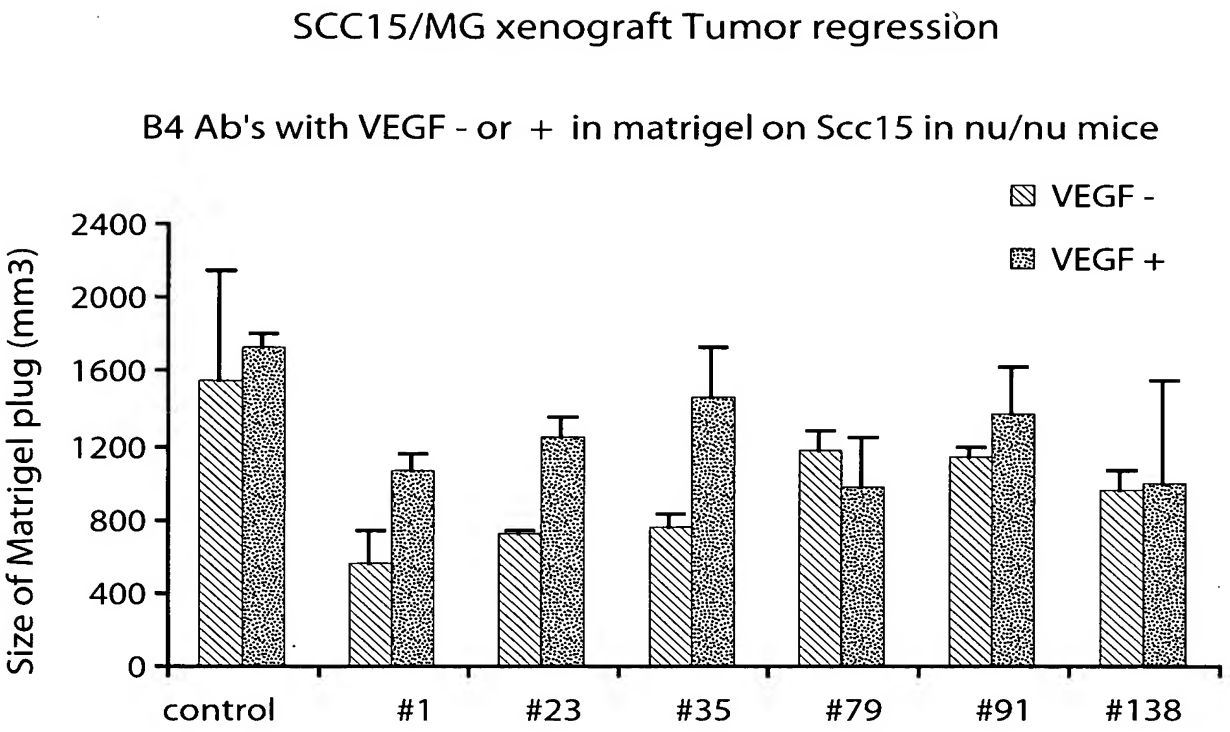

SCC15/MG xenograft Tumor regression
B4 Ab's with VEGF - or + in matrigel on Scc15 in nu/nu mice
VEGF -
VEGF +
Size of Matrigel plug (mm3)
2400
2000
1600
1200
800
400
0
control
#1
#23
#35
#79
#91
#138

Fig. 58

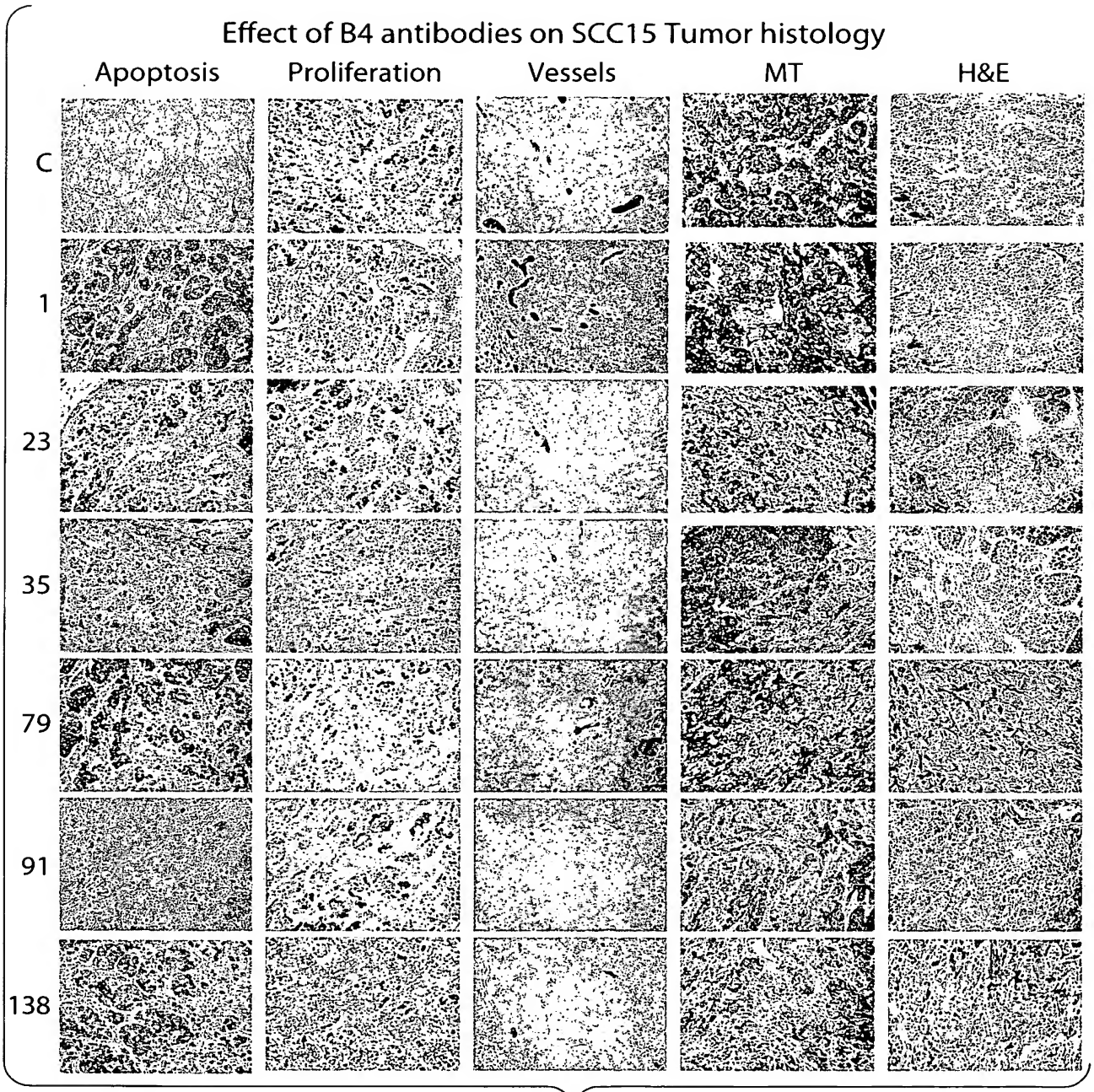

Effect of B4 antibodies on SCC15 Tumor histology
Apoptosis
Proliferation
Vessels
MT
H&E
C
1
23
35
79
91
138

Fig. 59

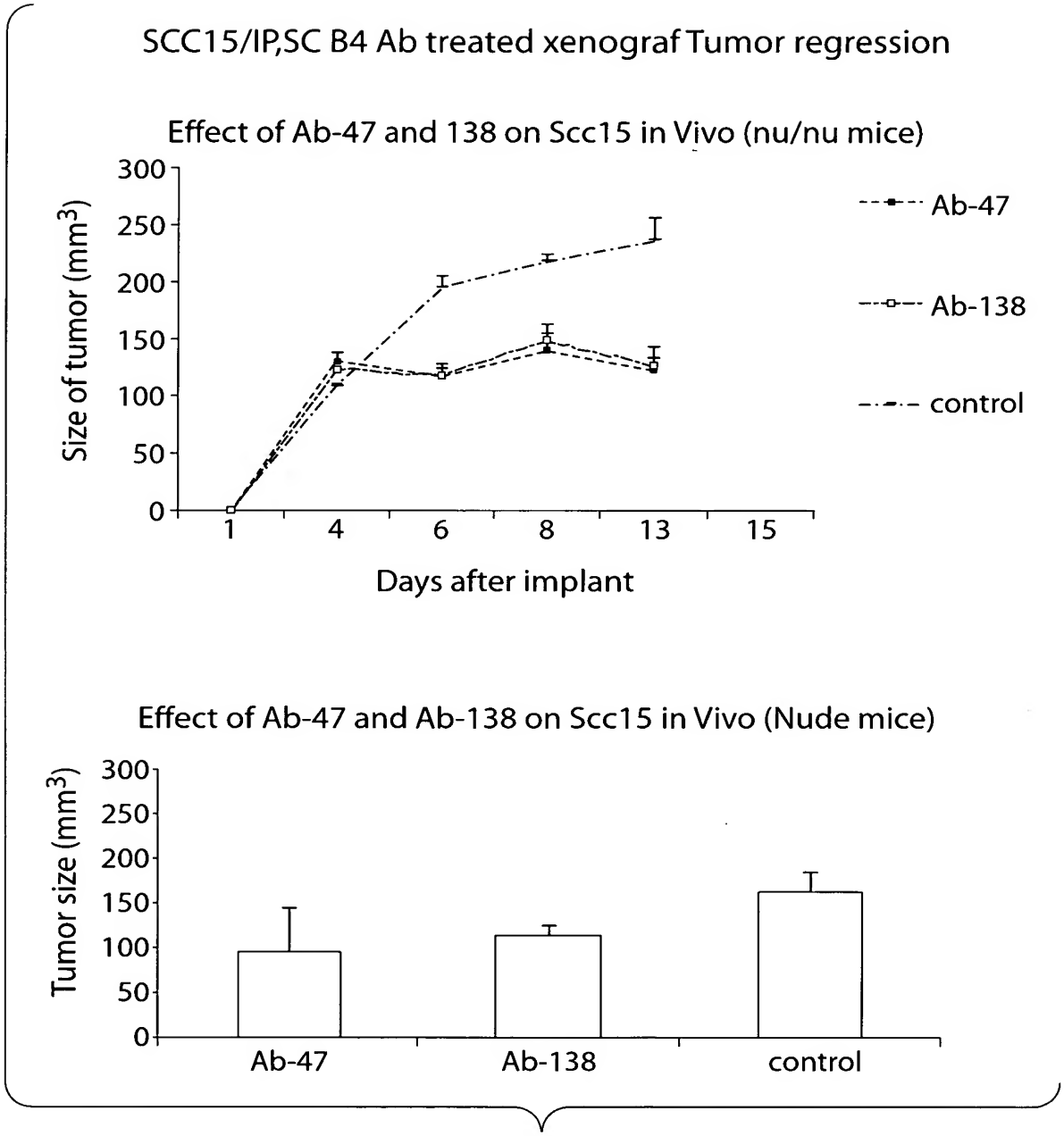

SCC15/IP,SC B4 Ab treated xenograf Tumor regression
Effect of Ab-47 and 138 on Scc15 in Vivo (nu/nu mice)
Size of tumor (mm3)
300
250
200
150
100
50
0
1
4
6
8
13
15
Days after implant
Ab-47
Ab-138
control
Effect of Ab-47 and Ab-138 on Scc15 in Vivo (Nude mice)
Tumor size (mm3)
300
250
200
150
100
50
0
Ab-47
Ab-138
control

Fig. 60

EphB4 gene

```
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  61 ctctgcctcc caaaatgctg ggactacagg cgtgagccac cgcgcccgcc acacccacct
 121 tttctttacc gttgtttcct cgatttttct ctactcccta gcgcagctta gtgcgcgcct
 181 cctctggaca tttttcaggg cttggttgcg cgcacagtag gtccccaaca ctgaatgttt
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 301 ccccctgggc ggccgtcaat tctccaaagc ttctactccc ttttccttcc ttttccccca
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 421 ccgcagcaag gtcagagcgg gctttgtgtg cgcggtgaac atttacgtgc acgcctgggc
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2521 acgaggtgtg gtgagaagga aagacgcaaa gaggaaatgg tgattgtgac acctattacc
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Fig. 61A

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```

Fig. 61B

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Fig.61C

```
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10441 gccactgcag tccggcctgg gcgaaagaac aagactctgt ctccaaaaaa aaaaaaaaaa
10501 aaaaaaaacg caaaaaatac ttaaaatgaa aaaaattaga ctgggcacag tggctcatgc
```

Fig. 61D

```
10561 ctgtaatccc ggcactttgg gaggccgagg tgggtagaac acctggggtg aagagttcga
10621 gaccagcctg gccaacaagg tgaaatcccc gtctctacta caaatagcaa aatcagctga
10681 gtgtgttggc gggcccctgt aatcccagct actcaggagg ctgagacagg agaatcactg
10741 gaacccaagt gattctcgac ttgaggtcga ggctgcagtg agtcgtgttt gcaccattgc
10801 attccagcct gagaaagtga gaccttgtct taaaaaaaag gaatgatatt atgaatacag
10861 cacatggctt gcatgcgtaa gttctcccaa aggcctcacc agttgcaagg caggctagtg
10921 atgggagtgg agggcgaggg aaggaggcag gaagagcaac aggaacttgg gttcccgggt
10981 gacggccacc ccactacctc tcccggacag ggcgccgagg gtcccagcag cgtgcggttc
11041 ctgaagacgt cagaaaaccg ggcagagctg cgggggctga agcggggagc cagctacctg
11101 gtgcaggtac gggcgcgctc tgaggccggc tacgggccct tcggccagga acatcacagc
11161 cagacccaac tggatggtga gcctggggaa gggggtgagg gtgggggttg gaaagacccc
11221 caaagttcct gggaagaccc caggtctcca aagtcccatc atctttttt ttttttttt
11281 tttttgagat ggagtcttgc tctgtccctc aggctggagt gcagtggcac catctccgct
11341 cactgcaacc tccgcctccc ggattcaagc cattctcctg cctcagcctc ccgagtagct
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11461 gcttcaccgc gttggccagg ctggtctcga actcctgacc ttgtgattcg cccgcctcgg
11521 cctcccgaag tgctgggatt acaggcatga gccactgcac ccggtcaaag tcctatcttc
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11641 aaaccaaaac caacagctga gttttgtgaa gtctggcctg cttcactctg tacccccagg
11701 ctggagcgca gttgctcgat caaagctcac tgcacagcca ggcacagtgg ctcaccctgt
11761 aaccccagca ctttgggagg ctgaagcagg aggatcactt gaggtcagga gttcgagacc
11821 agtctgacca gcatggtgaa accgcgtctc tactaaaaat atagaagtta gctgagcgtg
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12181 tttctttcac attttttttt ttgagacgga gtctcactct gttgcccagg ctggagtgcg
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12601 caatcctccc gcatcggcct cccaaagtgc tgggattaca ggcatgagcc gccacaccca
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12721 gttccccctgc catacaattt gcctgttcaa agtgtacaat cgatgacttt tgatacattc
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12961 cgagcagaat gttttcaagg tttatgtatg ttgtagtata tatccgtggg ttttttggt
13021 tgtggtttgt tttttgtttg ttttggaaac agggtctcgc tctgtcaccc aggctggagt
13081 gcagtggttc aattacagct cactgcagcc tcaacctccc aggctcaagt gatcctccca
13141 cctcagcctc ccaagcagct gggactgtag gcatgagcca ccatgcccag ctaatttttt
```

Fig. 61E

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13201 ttggtatttt ttgtaaagac agggtttcac catgtttccc aggctggtct cgaactcctg
13261 agctcaggca atccacccac ctcagcctcc caaagtgctg tgattacagg catgagccac
13321 tggacctggc ctgttttttg tttttgtttt gaacacacga ttttgctttg tcacccaggc
13381 tggaatgtaa tggtctgatc atagtgcatt gcagcctcaa actcctgggc tcaagcgatc
13441 ctcctacctc agcctcctga gtatctggga ccacacgtgc tcaccaccat gcttggctaa
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13561 cctggcctca cacaatcctc ccacctcagt atctcagagt gctgggatta caggcatgag
13621 ccactgctcc tggccaatat ttcatttctt tttatggaga cgtaataatc agttgtatgg
13681 aaatagctga ttttgttttt tattgtatct tttggtgaac atttcaattg tatcgacttt
13741 ttggataaaa acctgaaaat gtttcacctt tagaacgttt cattgaatgg agatttttt
13801 gtggactctg gtatttatac tagaaccaaa tcaaaaccac tctggcggct gggcatgcct
13861 aggctggttt gagactagcc tgtccaacct ggtgaaagcc catctctact aaaaatacac
13921 aaattagccg agcatggtgg tacacacctg taatcccagc tactcaggag gctgaggcag
13981 gagaatcgca gaacccggga ggcggagatt gcagtgagct gagattgcgc cactgcactc
14041 cagcctgggc gacagagtga gactgcgtct caaaaaaaca aacaaaaaat tactctggca
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14281 aagccggggc tggggcctcc tacaggacca tcagtttctc ctgatcagca gcctttcctt
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14401 gtgtggtcct ggtcctggtg gtcattgtgg tcgcagttct ctgcctcagg taagggctct
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15541 gagggcgtgg tcaccaacag catgcccgtc atgattctca cagagttcat ggagaacggc
15601 gccctggact ccttcctgcg ggtgagcacc ctccctggct tctgcggcca cccggagttc
15661 ccacttacac ccagaggcca cttgggttaa gaagccagga cagacagtgg gtcccaggtc
15721 acctcctcca gccttttcct cttgggctaa gccctggtcc tctgcctttt ctttttttta
15781 agacagagcc tcgctctgtc gcccaggctg gagtgcagtg gcgcgatctc ggctcattgc
```

Fig. 61F

15841 tgtctccacc tccagggttc aagcgattct cctgcctcag tctcccaagt agctggtact
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15961 atgtaggcca ggctggtatc aaactcctga cctcaagtga tctccccacc tcagcctccc
16021 aaagtgctgg tattacaggt gtgaggcacc acgcctggcc agccctctgc ctttaatttt
16081 ccctctggga aaggctgggc tcctgggacc ttcctttccc actgccccat acagctgaag
16141 gttgtcattc cttcttttt tttttaattt tgttttaatt gaatttttt tttttgagat
16201 ggagtttcac tcttgttgcc caggccggag tgcaatggca agatcttggc tcaccgcaac
16261 ctccgcctcc caggttcaag cgattctcct gccttagcct ccccagtagc tgggattata
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16861 tacacacggc aaactggatt tctcctcttg gggagcagag ggtctaatgg ggcaggggga
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16981 tgaaaaaaag caaacggggt ccttcatgca gatgtggcta gagaggaaag agaactgctt
17041 aatttatttg gtcactttac cagattttac tgacttttt ttttttttta actttattaa
17101 gcttttcttt tttcttgaga tggagtttcc atctgtcacc caggctggag tgcagtggtg
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17941 agcagttcct catgatgaca ctgacacact gaagggttag gtcccttgtc cgcctgaatg
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18241 caggcgagtg ccaccatgcc cagctaattt ttgtattttt agtagagaca gggtttcacc
18301 atattggcca ggatggtctc gaacttctga cctcgtgatc tgcccaccac ctcagcctcc
18361 cacagtgctg ggattacagg catgagccac tatgcccggc taatttttgt atttttagta

Fig. 61G

18421 gagacagggc ttcgccatgt tggccaggct gatctgaaac ccctggcctc aagccatcca
18481 ccctccttgg cctcccaaag tgctgggatt aaacgcgtga gccaccgtgc ctggtcgaag
18541 agacagaaag ggtcttaaag gttcagtgac acacacctgt aatcccagca ctttgggaag
18601 ctgaggctgg tggatcactc gaggccagga gttagagatc accctgggca acatggtgaa
18661 accccgtctc tacacaaaat acaaaaatgg gcagagcatg atggtgcata tctgtagtcc
18721 cagctactcg ggaggctgag gcgggaggat cacttaagcc tgggagatcg aggctgtagt
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18841 agatgggaag accagcacag gtgaaactgg tgaacagagg agagatggta gatgctgcat
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20881 caccgagacc tggctgctcg caacatccta gtcaacagca acctcgtctg caaagtgtct
20941 gactttggcc tttcccgatt cctggaggag aactcttccg atcccaccta cacgagctcc
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Fig. 61H

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21181 acagttggat aacctgggca acatagcaag accccatctc tacaaaaaaa ttaaaagatt
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22741 agctcatgct ggactgttgg cagaaagacc ggaatgcccg gccccgcttc ccccaggtgg
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23581 agatcctctt cagcttttat gtgaaatggt tttatgattc cttgcctccc aaaggctgcg
23641 tatccccact tggcctttgt ctgctactcc ccctttctgc cttcccgttc ctctcccaag
23701 atctcctctc accccaggtt gaataacaga aatagaagga atagaaatct gaaggccggg
23761 catggtggct catgcctgta atgccagcac tttgggaggc cgaggtgggc agatcacttg
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Fig. 61l

```
23821 aggttaggag ttcgagacca ttgtggacaa cttggtgaaa ccttatgtct actaaaaata
23881 caaaaattag ctgggcatgg tggtgcgtgc ctgtaatacc agctactgag gaggctgagg
23941 caggagaatc gcttgaaccc gggaggtgga ggttgcagtg agccgagatc gcaccactgc
24001 actccagcct ggatgacaga gtgaaattcc atctcaaaaa aaaaaaaaaa aaaaaaaaag
24061 aaatgtgaag gccaggtggt ggctcacgcc tgtaatctca gcactttggg aggctcaggt
24121 ggaccgattg cttgagccca ggagtttgag agcagcctgg ccaaaatagc aaaaccccat
24181 ctctacaaaa caaaaacaaa aaaattagct gggcatggtg gtgcgtgcct gtggtcccag
24241 ctactcagga ggctagagcc agagggtctc aggccagtct gcccctgccc cacggggcct
24301 gggcacatcc ctccctaatt cttcccagcc tctctctgac ccaggggcc tcctctccct
24361 tttttccct tatctcagcc tccagccatc agcaacctcc tcttcctctc cacccagctc
24421 ttcctctccc acttcggcct tttctttctc acactccatt tccctctacg gcaatctgtg
24481 cagcctcttc ccccagtctc attttgcggg cttttctctc ttttctttcc ttccctggca
24541 cccaagccaa aggccctgcc tctggcctcc agccctaccc ccttctgcgg ttgcacagaa
24601 ggatggctgc ccagctctta aaaaaactgc ccgggaactg ttgacatctg ttctccctcc
24661 cccgctggct tttctgattg gcttacaatc ctgaggctag gaccgtctca ggagccaaga
24721 gaggagagcg gccacaggga acctagggtc tcaccaagct ctcctttcct tctgcaggga
24781 cctgctccga atcggagtca ctctggcggg acaccagaag aaaatcttgg ccagtgtcca
24841 gcacatgaag tcccaggcca agccgggaac cccgggtggg acaggaggac cggccccgca
24901 gtactgacct gcaggaactc cccaccccag ggacaccgcc tccccatttt ccggggcaga
24961 gtggggactc acagaggccc ccagccctgt gccccgctgg attgcacttt gagcccgtgg
25021 ggtgaggagt tggcaatttg gagagacagg atttgggggt tctgccataa taggagggga
25081 aaatcacccc ccagccacct cggggaactc cagaccaagg gtgagggcgc ctttccctca
25141 ggactgggtg tgaccagagg aaaaggaagt gcccaacatc tcccagcctc cccaggtgcc
25201 cccctcacct tgatgggtgc gttcccgcag accaaagaga gtgtgactcc cttgccagct
25261 ccagagtggg ggggctgtcc caggggggcaa gaaggggtgt cagggcccag tgacaaaatc
25321 attggggttt gtagtcccaa cttgctgctg tcaccaccaa actcaatcat ttttttccct
25381 tgtaaatgcc cctcccccag ctgctgcctt catattgaag gtttttgagt tttgtttttg
25441 gtcttaattt ttctccccgt tccctttttg tttcttcgtt ttgtttttct accgtccttg
25501 tcataacttt gtgttggagg gaacctgttt cactatggcc tcctttgccc aagttgaaac
25561 aggggcccat catcatgtct gtttccagaa cagtgccttg gtcatcccac atccccggac
25621 cccgcctggg acccccaagc tgtgtcctat gaaggggtgt ggggtgaggt agtgaaaagg
25681 gcggtagttg gtggtggaac ccagaaacgg acgccggtgc ttggaggggt tcttaaatta
25741 tatttaaaaa agtaactttt tgtataaata aaagaaaatg ggacgtgtcc cagctccagg
25801 ggtgatgggg gtgatggact agatttctaa ggagagtggg gctgggtagg gagggctttg
25861 tggctgaccg agaggtgtca gaggtctgga ggctgcaggg ctgtaggggc tggaacttgg
25921 ttatcagccc cagggtatgt ttgaggtggt ggggtggggg ccgagcgaga tgaatcattc
25981 gcagctgctt ctaacgtctc
```

Fig. 61J

EphB4, mRNA

```
   1 ctcggcccgg cggcgcgagc agagccactc cagggagggg gggagaccgc gagcggccgg
  61 ctcagccccc gccacccggg gcgggacccc gaggccccgg agggacccca actccagcca
 121 cgtcttgctg cgcgcccgcc cggcgcggcc actgccagca cgctccgggc ccgccgcccg
 181 cgcgcgcggc acagacgcgg ggccacactt ggcgccgccg cccggtgccc cgcacgctcg
 241 catgggcccg cgctgagggc cccgacgagg agtcccgcgc ggagtatcgg cgtccacccg
 301 cccagggaga gtcagacctg ggggggcgag ggccccccaa actcagttcg gatcctaccc
 361 gagtgaggcg gcgccatgga gctccgggtg ctgctctgct gggcttcgtt ggccgcagct
 421 ttggaagaga ccctgctgaa cacaaaattg gaaactgctg atctgaagtg ggtgacattc
 481 cctcaggtgg acgggcagtg ggaggaactg agcggcctgg atgaggaaca gcacagcgtg
 541 cgcacctacg aagtgtgtga cgtgcagcgt gccccgggcc aggcccactg gcttcgcaca
 601 ggttgggtcc cacggcgggg cgccgtccac gtgtacgcca cgctgcgctt caccatgctc
 661 gagtgcctgt ccctgcctcg ggctgggcgc tcctgcaagg agaccttcac cgtcttctac
 721 tatgagagcg atgcggacac ggccacggcc ctcacgccag cctggatgga gaacccctac
 781 atcaaggtgg acacggtggc cgcggagcat ctcacccgga agcgccctgg ggccgaggcc
 841 accgggaagg tgaatgtcaa gacgctgcgt ctgggaccgc tcagcaaggc tggcttctac
 901 ctggccttcc aggaccaggg tgcctgcatg gccctgctat ccctgcacct cttctacaaa
 961 aagtgcgccc agctgactgt gaacctgact cgattcccgg agactgtgcc tcgggagctg
1021 gttgtgcccg tggccggtag ctgcgtggtg gatgccgtcc ccgcccctgg ccccagcccc
1081 agcctctact gccgtgagga tggccagtgg gccgaacagc cggtcacggg ctgcagctgt
1141 gctccggggt tcgaggcagc tgaggggaac accaagtgcc gagcctgtgc ccagggcacc
1201 ttcaagcccc tgtcaggaga agggtcctgc cagccatgcc cagccaatag ccactctaac
1261 accattggat cagccgtctg ccagtgccgc gtcgggtact tccgggcacg cacagacccc
1321 cggggtgcac cctgcaccac ccctccttcg gctccgcgga gcgtggtttc ccgcctgaac
1381 ggctcctccc tgcacctgga atggagtgcc cccctggagt ctggtggccg agaggacctc
1441 acctacgccc tccgctgccg ggagtgccga cccggaggct cctgtgcgcc ctgcggggga
1501 gacctgactt ttgaccccgg cccccgggac ctggtggagc cctgggtggt ggttcgaggg
1561 ctacgtcctg acttcaccta tacctttgag gtcactgcat tgaacggggt atcctcctta
1621 gccacggggc ccgtcccatt tgagcctgtc aatgtcacca ctgaccgaga ggtacctcct
1681 gcagtgtctg acatccgggt gacgcggtcc tcacccagca gcttgagcct ggcctgggct
1741 gttccccggg cacccagtgg ggctgtgctg gactacgagg tcaaatacca tgagaagggc
1801 gccgagggtc ccagcagcgt gcggttcctg aagacgtcag aaaaccgggc agagctgcgg
1861 gggctgaagc ggggagccag ctacctggtg caggtacggg cgcgctctga ggccggctac
1921 gggcccttcg gccaggaaca tcacagccag acccaactgg atgagagcga gggctggcgg
1981 gagcagctgg ccctgattgc gggcacggca gtcgtgggtg tggtcctggt cctggtggtc
2041 attgtggtcg cagttctctg cctcaggaag cagagcaatg ggagagaagc agaatattcg
2101 gacaaacacg gacagtatct catcggacat ggtactaagg tctacatcga ccccttcact
2161 tatgaagacc ctaatgaggc tgtgagggaa tttgcaaaag agatcgatgt ctcctacgtc
2221 aagattgaag aggtgattgg tgcaggtgag tttggcgagg tgtgccgggg gcggctcaag
2281 gccccaggga agaaggagag ctgtgtggca atcaagaccc tgaagggtgg ctacacggag
2341 cggcagcggc gtgagtttct gagcgaggcc tccatcatgg gccagttcga gcaccccaat
2401 atcatccgcc tggagggcgt ggtcaccaac agcatgcccg tcatgattct cacagagttc
2461 atggagaacg gcgccctgga ctccttcctg cggctaaacg acggacagtt cacagtcatc
2521 cagctcgtgg gcatgctgcg gggcatcgcc tcgggcatgc ggtaccttgc cgagatgagc
2581 tacgtccacc gagacctggc tgctcgcaac atcctagtca acagcaacct cgtctgcaaa
```

Fig. 62A

```
2641 gtgtctgact ttggcctttc ccgattcctg gaggagaact cttccgatcc cacctacacg
2701 agctccctgg gaggaaagat tcccatccga tggactgccc cggaggccat tgccttccgg
2761 aagttcactt ccgccagtga tgcctggagt tacgggattg tgatgtggga ggtgatgtca
2821 tttggggaga ggccgtactg ggacatgagc aatcaggacg tgatcaatgc cattgaacag
2881 gactaccggc tgcccccgcc cccagactgt cccacctccc tccaccagct catgctggac
2941 tgttggcaga aagaccggaa tgcccggccc cgcttccccc aggtggtcag cgccctggac
3001 aagatgatcc ggaaccccgc cagcctcaaa atcgtggccc gggagaatgg cggggcctca
3061 caccctctcc tggaccagcg gcagcctcac tactcagctt ttggctctgt gggcgagtgg
3121 cttcgggcca tcaaaatggg aagatacgaa gaaagtttcg cagccgctgg ctttggctcc
3181 ttcgagctgg tcagccagat ctctgctgag gacctgctcc gaatcggagt cactctggcg
3241 ggacaccaga agaaaatctt ggccagtgtc cagcacatga agtcccaggc caagccggga
3301 accccgggtg ggacaggagg accggccccg cagtactgac ctgcaggaac tccccacccc
3361 agggacaccg cctccccatt ttccggggca gagtggggac tcacagaggc ccccagccct
3421 gtgccccgct ggattgcact ttgagcccgt ggggtgagga gttggcaatt tggagagaca
3481 ggatttgggg gttctgccat aataggaggg gaaaatcacc ccccagccac ctcggggaac
3541 tccagaccaa gggtgagggc gcctttccct caggactggg tgtgaccaga ggaaaaggaa
3601 gtgcccaaca tctcccagcc tccccaggtg ccccccctcac cttgatgggt gcgttcccgc
3661 agaccaaaga gagtgtgact cccttgccag ctccagagtg gggggggctgt cccaggggggc
3721 aagaaggggt gtcagggccc agtgacaaaa tcattggggt ttgtagtccc aacttgctgc
3781 tgtcaccacc aaactcaatc attttttttcc cttgtaaatg cccctccccc agctgctgcc
3841 ttcatattga aggtttttga gttttgtttt tggtcttaat ttttctcccc gttccctttt
3901 tgtttcttcg ttttgttttt ctaccgtcct tgtcataact ttgtgttgga gggaacctgt
3961 ttcactatgg cctcctttgc ccaagttgaa acaggggccc atcatcatgt ctgtttccag
4021 aacagtgcct tggtcatccc acatccccgg accccgcctg ggacccccaa gctgtgtcct
4081 atgaaggggt gtggggtgag gtagtgaaaa gggcggtagt tggtggtgga acccagaaac
4141 ggacgccggt gcttggaggg gttcttaaat tatatttaaa aaagtaactt tttgtataaa
4201 taaaagaaaa tgggacgtgt cccagctcca ggggt
```

Fig. 62B

EphrinB2 Gene

```
   1 gcgcctcgga gctgcctgcg ggcgcacgcc gtcttccccg ccagtctgcc ccggaggatt
  61 gggggtccca gcctgcgtcc cgtcagtccc ttcttggccc ggagtgcgcg gagctgggag
 121 tggcttcgcc atggctgtga gaagggactc cgtgtggaag tactgctggg gtgttttgat
 181 ggttttatgc agaactgcga tttccaaatc gatagtttta gagcctatct attggaattc
 241 ctcgaactcc aagtaagtgg cgtccgcgat ccccctatgt ccccgccccg gggtccgccg
 301 cgccgtccgg gcgggaggag gggtcagtcc gcggggcctc ggagcctgtt tctggaacct
 361 cggttccccg tcccccaccc ccaacccccg ccccatttca ctaggtggag actcctcgct
 421 cggctttcca acccgagccc cgctggaacg gacggtctct ccgcctttcc tcccccgaac
 481 gctcccaggc gctaaaagct actatcggct cgggtgtcaa gtccgggaag gtgtccgatg
 541 gcgatacctg accctctcct gttttcgagg acgaaggaca tggccacaat ctaggctggc
 601 cggcacgcgg ggactggtgg gctctggaga gaggcggaga tgctgcattc gcggggagcg
 661 cgggcggcgt ggtccggggc ccgcgggcgg gcgaccgggg tggcaggacg ctggcagcga
 721 agcgcgttct ggagagggga gcctggagtc gctacgctgc ccgcagagcc ctggagccgg
 781 ggcgccttgg caccgcgccg ccagcccgag ggtgcgcggg gagctcgcct gcttcgcagg
 841 agaactcggg cgtcgagccc tttcctccgc gccggggaga cgggccttag gcttctccct
 901 gagggcccgc cgcacctcgg cctcccgctt cgttcataag ccggtagccc cggagtatgc
 961 ggtctcgatg gccgacctga ttgtaatgca cttcctataa aagcttaggg ccctgcccag
1021 tcgacactgc tcctgaagcc ttctccctcg ggaccctggt aggaatggga tccttaggat
1081 cagatttgct cttaccggac tctacagccg ggagcgagcc aggccttgtg gagagtaact
1141 ttcagtttgg gccaccagag tgcattcaga atttagaaaa tcccatccat ccctaaatct
1201 gtgtggtcat aactcgtagt catctgggta ttcagtactg tgtatcccct tatttcgaat
1261 cacagccaaa acatatttta cagaatcttg gaattgtagt ctcgggaaac ttggagaaga
1321 agtatgcaga cattagctgg tttctggaga aaacgtttga gatcagaagc aaaatcaatg
1381 gcctaattga agttgagcaa gttgggcctg gttttaggag aaaagaaatg ggggattgat
1441 ttagaaatca cgtcttaaag gagtgtgtcc attctcttaa aagtgtcaaa tttcaaattc
1501 actaacatgt taaccaagaa tcccttcatg aaaagggcga aaacgtcggt tacaaatcgg
1561 tttaaacaaa tgtttgtatg atgctagaag gcactttcaa caccgctcat acggagaagt
1621 tacttagctc tgcctccttc catgtagtct gctcttgcat ggattatatt tttaatgtaa
1681 attgttgtat ttgctgatga agtactggcg gcggcatctt tgcatcgatg ccggctcggg
1741 aggcgccagg tggtgccgga aggagccggg ctaggacctc gcgcagcagc gggtcccgga
1801 gtccgggaga ggcgggcggg cgggcgaggc ggtcgcgggg agcccgcggc gccgctgccc
1861 gcccggtgcc tccagaggtc actcttccat gcggaatcgc gcagcgccag gcctcgcccc
1921 tcccccaggc cgcctgctcc agccactctg cactttcact gaccggttct ctttgaggct
1981 gtttttttt ttcttatgag gatttaatat ttctgtttaa atctagttga aagcaattcc
2041 gttagcctct tcagcgttta gttcggtgtg tgtatcttta tctttgcgct atattaacta
2101 ttagtttgtg tgtatccggt aggagaatta gaaataccta gttgggagaa aaagaaaagt
2161 agaacaatag ttatttcaac ctaaggttta gacgttaata acttcttttt gtaatgtgtc
2221 gagatggggg gtcctggggg gaggtgacag gtactcacca ctccccccc ccattctgat
2281 gatgaagatg agtctgtctt tccagctatg tccagacctg cgagggccct gcgtttctgg
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2401 cttttaaaat tctcctgata acggcctgcc tggatgactg gataatgtgt gcctggaaaa
2461 ggtctccctt gcagctgaat gctagctcca gagatcagaa agatttcttc ctgtaggagc
2521 cataggaaag agtcctctct aagtttttga gaatgcatac aacccctga tgacaggggg
2581 tcgctttcct tggggaagtt ttatatttat ttccagagga aagtttgaat cggtaaatat
```

Fig. 63A

```
2641 gatgtggcag gaaggtaatc aaatgcattg aagtttcaca tcagttccta tgaactgtgg
2701 aacaattcat ttgtaatgaa gccgccatca gtaattagat ttgtttcatt cagaggtcag
2761 ctttttagc aggtggtcga cacagggagc atgcagcagc tgtttggata cagggtccag
2821 aaaacccttt gtaaattcag cgtctccgta actactttaa tcacattgtc ggctctcccg
2881 tccctgactg tatgtaataa tggaaagatg tcctgcgtgc tgaaacagta gctgccctgt
2941 taggttattc acattgcttt gatacgttct ggtagagttg ggtccgttgt agccattttg
3001 gttgtttaaa gttttggttt ttttttgtt ttttttttaa ttcagcagag aacagtaatg
3061 cctagcttcc gtttttaact taacacttca gtagaacatt ttcttccaag agggagattt
3121 tggcctaagt aaagtagtgg gctctttttt aaaaaaaaat taattttact ttaatgtgag
3181 caaatctgta ttggtatggt gttctgcaat gcattacact gactttgaaa atttcgagta
3241 ctaatgcctt atgtctgggg ttaccattcc ctgtgcatca catactagtt agttaacata
3301 gcattttgct tttcccatgt aatttttttcc ctatataata ctggattcct gatactaatt
3361 gacttgatac aaaagaatgg ctggatgata tccagataac gtataataca tgggcttcac
3421 cacaatcagg ctctgaataa atacagacct gtcagagatt gataaaataa actacaatgg
3481 atagtgctgt ttaaacagtc cattcaataa catatataag ccagcctgcc ttccattgtg
3541 tctgaaattc ttatttttgt aggtaaacaa atgcacattc agcactgatt gaatagcccc
3601 ttgaactatg ctccacagtt tgcgtttggg ttaatcttgt cggttttaat atagagagaa
3661 aaaagctcaa agcaccaggg gtggaattgt tagtgctttc acatccacat tcctcacatt
3721 ttgtcaggat gataaactgt aggtaatgga ctgtcgttgt tctgcaggac aactgagcca
3781 ggcagagcac aaagactaag ctaaagcgat acctcacaac atgcttggta gccttctttt
3841 cagatgagaa tttatttgag aatcatgtgt ctagggactg cacatcttaa cctcaacagt
3901 tacagcttca agccccagaa acaggagctg gaggttaaga tgatttgcta agcacctggt
3961 tctaaatctt ttacaaagca taagctgttg acgctggttc tgccgacgca aagacatgca
4021 gatgactcca acatttccag aggcttctga cttaagctaa agtgtgtgga caggtgaatt
4081 cgccatgggc ctggagacca gcttgctaaa aactatgtgt ttgaatggtt cctccagaca
4141 gagtcagctg aagaacaatt ggtggattta tattaaaacc tcttgtctgt aaacttactg
4201 aggtgcatcc ttcggttggt ggatcagtga gataattgcc ttcagatgga cattgcaact
4261 ggagcaacta aatccttgct gtctttcctt cctctgaaat cttccaggta gctcccgaga
4321 gcttcagtat gacaccaaac ttcgggcgac gttttagagt gcgttcacct aatgggaaac
4381 tattcgagat cccagcgtga ctgcagtaat gcgtcatagg aatgggagtg gcaggggaaa
4441 aggaaataca gattgtagac cctaataaaa aaatttttag gaaagatatt tctttaacgt
4501 tttatgagaa cttcattctt aaaatactta attgcaaatt agacaaatag aagtgctctt
4561 ctaaggaagg tgattaaact ggtcctccta tcagcctaat ctctgcctgc ctttgctgct
4621 gacataaaga acctgttttt caggtcactt aatatacatc tacatagatt tgcttatgag
4681 ctcacccttt gtgtagcgga gtagagcctt aaagaggagt gctcaactgt ttaaaatatt
4741 ttgattaaaa tatgcagaac ccatagaact ataagcttct agtcaggaat tagctctttc
4801 agggaacagc tccccccttc tttttaaggg gggaattaga aggaggctgg gggaggaata
4861 taagaacagc aaagaaggaa ggatagcaaa tgggacatgt tccgaacagc ttggaaaaac
4921 tcctgtggct tcattgtctc tataaagcca aagaatacaa agacataagc aattcagccc
4981 ttctcccatg atggaagatg taaaccgttg acatgcctcc cctgtttaac ttgtttaatt
5041 ctcattttaa attcagcacg atactagccg tgtgaactct gaagatttct ttagtaatcc
5101 attttgtagt tccgaatcaa aaacaaagtg aaagggtctg acacaatttg cttttatttt
5161 taggcaaatc aaccctggtc atagttaata aggggattac aactcagact aggtctttac
5221 agatgtgatg taaatcaagg gcagagtata aagaaactga tccctttga ttgaagtata
```

Fig. 63B

5281 gtaaaaaggc atagagaaac tagcagcagt aatctgattg tatggcaata aaaccaccat
5341 tttctgtctt tcagataaaa ataatgtggt aaatccatgc agttcataag atgtaaaggc
5401 agataaaggg tgaagccatg gcaacatata gattagcttg atgttagaaa tgacacgtct
5461 ctgaaaaggg cgcgggacga aggcccttgc ctccaggctg ttgggcatta tgtgagaacc
5521 acacagactt ggaaactggg attaggaagt atgaaagctc tacttgtggt ctgggatggc
5581 tgaggcagta aagaaaagct gctcagttct tgctcattgg tggtggataa tatggcaaag
5641 gtagatttca ttgactgcct tttttataga ttgagattgg ggctgattaa aacttcagat
5701 cactgcagtt gttagggcct gggagatttt ccttttaac tcctggccta acagcagcag
5761 ccgttctgta ggattaactg cacttcgcgg tcgttgcctt aatctatttg ggcttcaggc
5821 agggacatgc tgggaaggaa cagagaccag aggggatagg tagggctggg gttatctgaa
5881 aagaaaacag agacctttg atttcagcca tcttttcaga cccagctccc tctcccgctg
5941 catgggagaa gcaaaggtaa acaggacaca ttgtccctct ccctcagcca cagagctctt
6001 ctgtgagttt tgtctttccc accctggaaa aaaagataaa atacaatttt taaaagggga
6061 gggaggaatt tagttttaat tcaaatgagt agtaatccaa tatgccaaaa gcagtgggct
6121 ctacctagat gtaattttac tcgtaaatgt gagtcttaaa ctttgagttg aatggggcag
6181 gctgttagag gtggtgtaaa ttacaggatt ataaaaatgt tagtgctgcc cagccttaaa
6241 gtcaaaaaca gaaaaatctc tgtgctgttg agtcttcccg ccctctctcc tgaacaacct
6301 tgtaagtaag ctagactttt gtttttgcct tccatacttt ccatttcagc cattaaacaa
6361 aataagccat tgaaaccacg attgggttcc atgcagagtg acatccgcaa tcgggtcaag
6421 ccagaaggaa atacttgctc gattgccccc tatttggcat tacaggaaag tctccacact
6481 ttggaagagt ctgaactctc aagacattga aaatgccaaa ggctgcaaac accctgtgtc
6541 tttcttgatg gagtgcatct tggtgtgttt tacaaagggg aattcagtgc tgttttttg
6601 ttgttgttgt tgttttttt ttttaaagag cagcataggg cccttctaga ctcttggatt
6661 ctgtgtctga caaaaatggt cattaaatga gcaatattat aatttagacc catttcactg
6721 attttgttcc aaattctcaa ctgacttgag catctgtttg gggctgtaga tacattgccc
6781 ttgttgactg tttttctcgt ttctatggga attactgtag ccattactat gtagctttca
6841 tagactcaaa acatttttaa agtattgcat ataggctggc catatccagt gcctgttact
6901 ttaccttctt tttctaactt aatgcagcag tctgtattaa cagatccatt tcatttgtct
6961 agcttcatca gagagaggct acccccctgat ttacaggctg ctcacatcca agcaccttgc
7021 attctacact tgacagtgat tgctaatggc ccattcaact aaagtatttg cttgttaaca
7081 gggaacagaa catgataaat gtccagcaag cttgctgcct ccttcagctt ttcaaacgca
7141 gactggtgca tatttatggc aggcaaatga caaaagaaaa agctgaattg ccctggcctc
7201 cagctttcta tcagaaacag ggttaaagtg attaaagcaa tcattcaaga aagccctgcc
7261 gtttgtttac taaccttcat ccaacattta gctttgtagt ctacctgtga gaagatattt
7321 cagaagtatt agagataagg aaggaggatc tagcaaacca gtgaaaagag taggtgacca
7381 gttataaaat gctttccatg cacattgaat gccaggcgaa cctatttctg ttattccagc
7441 agacaatcag cagtggctct agattattaa catattttcc tttcatgtat aaattcaaat
7501 atgtaattct agtccaaagc attctgtggc tggtaagcac atacttgctg atttcaaata
7561 agaaaacata gcaagggaaa gctccattaa acaagttgtt tctgccctta gtaattctct
7621 aaacaagata ggaagaaaaa gtggacagta gtggagtatt aatagtgtgc tcttttcatt
7681 ctctaaagca cgagtaagta agcgttcaaa ctactctgtg gtgggcatac atttagagcg
7741 ctgtgaatga accactgctg ttctgccata cttaatttat ttatattatt atttttattt
7801 tattgttgtt tttatgtatt attataatta tttatttata ttactaattt attttctcaa
7861 tttaaatcct gttgcatcca attttaatta cagtttttgt atctgccttc ccatacttgc

Fig. 63C

```
7921  tacccacgtc cccattgcca ctgcggcctt atccatgttt tctgtgtaca ccactctcgt
7981  atcaccccag aataattatg agtgctaccc agacttttga aaccactaga gtcaacatgt
8041  ttgtctttga ggaaagccaa tgatgcttta gcatttttgg caggggtgga tgtgtgttta
8101  agtggggtgg gtgcagctcc ttattgtctg cctattctac tgttgttccc aatccacatt
8161  ccctgcgggg cacctaacct gtgtgcatag caaagaattt ccgaccttca gagccagaag
8221  tgtttctcaa ttgatctctt ccagcctagg gttatagctg atgaattata atccttgctc
8281  tttccacacc tttacctggg cttaccatgg ccctaaaaca tttgcccaga atcagaattg
8341  tctcatgagt gagtggggca aggcaaatcc tgttccagac cagctgagaa tgtacctagc
8401  tgcagaagaa gttagaaagt gtcatctttt acttatctac cagaactata ttcgaggtac
8461  attttagatt taaaaaaaaa gcaagttctc gtaggccttg aatccccccc ttgctatggg
8521  aaaatggatc attattataa tggactgtcc agtaaagttc atgatttctc ctagacatgt
8581  tctctctctt tatgacctag atcaagagtg atctctttaa gtcttttctt cataatccca
8641  cagcactttg tacttagatg tacttagaaa gaaccatata cacggtacgt catgattgat
8701  atgcaagcct tcaccactct acctgtccta aaagtcaggg acacaccttc ttcatttcat
8761  cagtccctac ttctatccag cattggcatc cagtaagtat tagtggaatg gacagacaac
8821  ccgaatttgt gctgatggca gtttaccctg ttttaactgt catccttctg ctactagaca
8881  tggatgagac ctgagacgat gggactgctc agaggtccct ggctcttgaa ctttagggca
8941  ccagaatccc ctgcagggct tgagaaaaca ggggtttctg ggccccaccc ccagagttcc
9001  tgattcctga ggtctggggt ggggcttgaa gatggacatg tttaacaagc tcccaggtga
9061  cgctggcaac tgctgcctca gggccatgct gagaaccctc gccctacaca aacctttctg
9121  ggaaaacaac tcaacattaa agctgtttgg ggatctctga agaaatctgt agtccttgcc
9181  ttgttggggg agcatcaggg atctaaccat tgatggtgga gtatttgttg ttaattcagc
9241  aagcaactat taagtgttag gcctgttact cggctctaac aatacaaggc agagtgacct
9301  gtaccctcga gatttaaagt ctaagtcctg tagagagaag cccaggtggg agcaagcaca
9361  tttagagtta ggtgcttggt gcaaggtggg gacacagaag aagggaatgg catttgcctc
9421  tggaggggtc cggaaacagc ctagggagga ggagcttgag tcttgaaata ctgtgggcat
9481  ctctaagcaa agtcacagta gacagctgaa ataaagaaaa tagtaagcaa gccaaagaaa
9541  cagtatttca gccaagggca gcgtgtgtct atcacgtcca cctgtgaaca cgtcccagga
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9841  ttagctgggt agctttagga gcagtagcct tagtgtctct cagttgtccc atctctataa
9901  tagggacaat aacataatag tgctgaataa aagagtaaca aaattttggt caacatttaa
9961  tgtatttaaa gagctaagct ccgtgattgg cacaatgaac caatcaatca aacaccagtt
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10141 cttaaacttc ttgatgttaa tttattttgt ttacctgcca aacttctact cattccttat
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10321 ttcagctgtg caactgtgga ctgagaggag gctctttgaa ttcattttgt atattctagt
10381 agagagtact gtgagcagtt gggttgttga atgaatacat taattcaacc tggagggatg
10441 ggcagtattg catttttttac attgatatta catgatattt agaaaactgc ttaactggtg
10501 gacgttgttt tattaacagc attttgtgta tagcactcac tatgtgccag ctgctattct
```

Fig. 63D

10561 aactgcctga caaatactcc tgaaaccttc atggtaacca tatgagggaa gcacttttaa
10621 tatatccata ataccaacgg ggagactgtg gccaaattgg ttaattaact tagccaaagt
10681 catattgaac taataagtgg atttaaaccc agctagtctg gggccagggt ccctctttta
10741 atcttctgcc tcctgcttat gctgttgcat ggagtagtct ttatcatata actaaattaa
10801 gcatgcattt gcttaaagca gtgcatacat gatggatcaa aaagtttgtg gtataattgg
10861 tttaattctg tcattatcca ttttgattta tagtcacttt cttatgatgg tcgtgtagtt
10921 ttaaatggaa cctttgaatc tttgatataa taaggttatg tcaaatcttg ggtataataa
10981 ggttataccc aatggaaaca gaataatgat cagcccattt aaaggatgac tggagagtta
11041 ttacaataca taatagtcat gcatatattg agtagtattc ctttggtaac attttccttt
11101 taaaaattgt aacatttgat tgttccttgt tgggagaaaa ggaggtcaga tttttgaggg
11161 gagatccatt tggtgagatg ctgagtgtgt gtcaagctaa ggagatagta tgacatcttt
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11281 tccagcttgt cagagctgag aagactcaaa tcaagtccag gcttatttct acagcaaact
11341 gggattctgg cttcttgccg gtggattcat tcagtacagc ccatctggct tttgatgttc
11401 tgcaagtttg gagccatttg ttgaaggaag ccaggcggtg aatattggtg gtcctggggt
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11641 tctcagtagc tgcttgtttg aatcacttat agtatttaac ttctagggtg tttttgggtt
11701 ttggtcaagg taattccagg ctgaatgtgg tgactaagca ggaaataaat gggtcgtcct
11761 caaagttaca gtggagcgct gtttctattt tcctaaggta cacagttgtg ggggcgatcc
11821 gtatggaagt caggaaccca gtctgatttt gcttcctttt gatggtagca gtacagacct
11881 ggctgttttg tagcctgctt tgtttttctt ccttttcttc cctaacttca cgggctgtgg
11941 caaagccctg agacgtgcag gaaaatgtct cctgtcatac gcccacagca gacctagccc
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12181 attctttaat tacacagcca cctattgagc accctattta tgcaaggtac ctggtcgggg
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12661 ctttgaattt ctttctctat gtaaaccatt tttctttctg gtgcctcacc tataaataac
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12961 caaatctcca catttttttct tatctagcta caaaattcat aggctgattt ttttggggtg
13021 cgtgtgtggt tttttttttg ttttttggt aaataaagac ctgcattttt attttgatat
13081 aggtggttga gttttgtctt taatttcatg acagagattt aactagtctc aacttttgaa
13141 aagacaacaa tgatatttgg ggatcacaca cttaaagtta gatttctaga tgattaatac

Fig. 63E

13201 caaagtagat gatttttag cctcagccat ttataggtat gcccttctgt gaatttttta
13261 tgacagtgaa aatcatggca cagataaaaa ttaaataaat acttctgtta ttttcctgaa
13321 gaaaaaaaaa aaaagcttaa actatgagaa tactgtcttt gagcacttta aaataaaatt
13381 gacttcagcc agcaggattt tgagcattac atcacaaata aaaaacaaga ttaacatcaa
13441 aaggagtcag ttttcattca attgtgcagc actgtgggct gtgaaattta atattatttt
13501 gactcatatg ctaattgtag actgacagag gaaaatggat tgtgtttaaa taaaaggata
13561 cacagcatca cacgcagctg tatcaaatac aagttgaggt ctttgggcca ggaactgggg
13621 gccctctagc tctgttattg cagattcaag tttgacaaat aaaactttcc tttagactgt
13681 agtttaatta ctttttttca aaggtatgcg tgatgaagag gcacaaatac acctcacctt
13741 gaagagttgc taaactggtt tgtgtgccga tcagttcacc gtgtgtttga atttctgtgc
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13861 acccccaccc atctagtctt tgctctcaga tttataacac tttaatggtt ccaaattgta
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15661 ccccccacac atttattctg ctcacacttg caccagcatc catgtcagga ctcaccttgt
15721 cctgttacat gagtaacatg gccctgattc tcaagtgcat gataactgcc ataattacac
15781 ataaatatta aatatttaaa tagatcttta cgtgtgtaat attaggtaga agtggctctg

Fig. 63F

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15841 gatcgaatct gatgcttttt aaatagaagc tttcccacaa catttccaag cactgtcatc
15901 gtgtctgtct cgatttgggg tttacctggc ctagttatct gtctgggtgt agaaactggt
15961 agttcctgtt tgtatctttt ttgttctgat ctctttattc tgtgtcagct aaatattctt
16021 gcagtcagtt actaacatat taactcatcc ttgtttggaa actttggcat atccttccat
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18301 gaagggttgc acatctgagc cgtggtctca gatgactgcc tcggaagaag cctcttccct
18361 tcaggcacca ctgatgtgtg cttggtgtgg agctagactt tccctggctc tccatgtgac
18421 gctcacatgt gcgtgtcttg atttcccttа acttcatggc ttatctatga acagcttgat
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Fig. 63G

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18601 cttcacctgt tttgtgtgtt aggtccatgc gtcatgctga aatgaagaac atgggatgta
18661 tggggctttg gacagtgctg agccaaaagc aagtgctcaa aagcagctgt gtttgtatta
18721 ttagtggttc tggaggtggc tgattgcctt gcattttaag tagagaggga ttgtagaaga
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19081 ccttgggtgt ttaatactga attagtcaca tgtgggactt gcctgccctc agggagctag
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19741 atagattttt aacaaagttg gacagtacac actgaatgaa aactttacat caaggaaggc
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19861 ctgaaaatat ggcctcaaac acagagatcc ccaaagccac accgacccct gcgtcccatg
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20461 taagacagga gaaaaaggaa atgtcaggaa gatgatcaat ttaatgttta tggaatttag
20521 tttgtactta ctgcccggca tcttgcctga ggtttttaac ctcagcagca catcagaatt
20581 actgtgtgtg tgttggaggg gctgggggag ataaagaaat tagcctcatc ccaaacattc
20641 tgattcagtc tgttacttga gaaactgaat tgtgttttgt ccataaagaa gatgaaattg
20701 tctacagaga acacattgcc attcacaagg ttgaggggat accacagaga ggctcccact
20761 gtgatttgca tttgtcaaaa gttctagaga attcttcaac agtacacaca tggttgtttt
20821 aaatatatca ttgttataaa aattcgtttt gagttctgtt tcacagaaag ttttttgaa
20881 tgaatgaatg tcatatatcc ttgctaaagg agctcagtta aaaaaaaagg gaccatcctt
20941 ctcttttggg ggttgtacag taacacattc ccaagaaaga ggtaacagcc acatacattt
21001 ttcttcccaa taaagagtgt gggtttttaa tatgaatcca tagtatgatt tctgttatgt
21061 tttgtgctgc ttcataacca cactcatgca cttttcagaa aattaatacc attcattagc
```

Fig. 63H

21121 ataaatcata aactattccc ttggtatggg tttgaaattg ggggtgccct atcatccttg
21181 ctttatctct tagtgaatta tgaccctgta gtcatcatgg ctggtgggcg tctctggtta
21241 aagaaagggt tggattggaa ggattcagag gcgattcttt gttcttaggc tttaatattt
21301 taatgagcct gcaggcttgg ctgcttacga acgagctgag atttctaagt gtgttgttag
21361 tgttagcact tgtagaagga tgttcattag gaagttcttg tttcagtttt tcagagaaac
21421 tccccattaa gaaagatcat tcaggaacat ggctaccaag aaagaggaaa gggaggaggg
21481 aggctttcag ctataagcat taaggggata ttgtatcagt agtcttagtt ctaaagattt
21541 gcttctgaga attaattgga gcaaatacat ctcaagggaa gaaaaaaaaa gatttatagg
21601 gcagggacag tagttgtcct tgcaagtaga ggacacttca ttttgcagct gaatcaatac
21661 cacaactaat tatttctggt tatcttttac gcatttgtaa gacattgctt ttgttcagtg
21721 taataaaaaa cccattgttt gatcagtgac tgactaatta tgataagtaa tttgaaacat
21781 tcttgatgaa acttgtctgt taattaacat caacagcaca gggaaactaa caggacaaca
21841 aagtattagt ggatccactg ttccctccaa ttgacgagct ttctctgtgg catgcccaat
21901 aaactaaagc tgccaatggt taaaaaataa caaacatgtg ggagatctga ctcaccacgg
21961 aggaagagtt atggtaaagt tacacaaagg agtactgaaa tattacaagc gaggggtgg
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22141 aagtaagaga cttttgataa attaaagtgt gaatctgaaa atgtgtagtt tgggattatg
22201 ggcattgcct ggctatcttg taactgtcat taatactgtt aatttttatc aactcaatgg
22261 ctttttttc ttatgctttt agatttctac ctggacaagg actggtacta tacccacaga
22321 taggagacaa attggatatt atttgcccca aagtggactc taaaactgtt ggccagtatg
22381 aatattataa agtttatatg gttgataaag accaagcaga cagatgcact attaagaagg
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22501 ttcaagaatt cagccctaac ctctggggtc tagaatttca gaagaacaaa gattattaca
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22681 tggaaaaatt gtccccccc ccttttttt tttcaaagaa aacttcattg aatttgggac
22741 cctgtgctac cagtattcat taagtataca tacccaaaga gaaaaaaaaa cactagaatt
22801 cttaatagta ttgaaataaa tgtattatat gaatatattc agcatctcta ctgacaaaac
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23101 aaaccagatt cagaagaaaa agacgaaact tggtttgctt agtacattac tctttttgc
23161 atacatatat ataatttgac acgctgtttc aagaagagat ggtacgtatc ccttgggtca
23221 tatctgaggc tgacttgtga ggatgtgaag tcagctgatg agcacatttg gagcccacgc
23281 ctactatgtg cagatctctc gtcagcgtca ttcccagggc cccaggtggt gttaaagtct
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23521 ctctaaaact ttaggtagga gactcttggt gatcaaactg aaactcttgc atctcaacct
23581 atgagccgca ctttattgtt attttatttt tttagagaca gggtctagct ttgttgccga
23641 ggctggcgtg cagtggcatg atcacagctc actgtagcct tgaactccag ggctcaagtg
23701 atcctcccac ctcagcctcc aagtagctcg gactacaggc atgtgccact gcacccagct
23761 caagagctac acttcaaagc acagaatgaa aacctatttt taaagccaac ttgatacata

Fig. 63I

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23821 gagtagctta ccaagaatta gtaacaacaa caacaagaaa aaaaagagag aatgtggtag
23881 agtatatact tagtaaggag taattattat aaaataaaag cattctgaaa tgaaacaggt
23941 agatggggtg gccaagtatg cagcatagta gggaaatctt tgaaaatgta aaatagttac
24001 caggtaaaat aaatggaaac tttaagcttt tggaagccta acaatgtatt tatattagta
24061 aagactttat ttttttattt tattttattt tatttttgag acggagtctc tctctttcgt
24121 caggctggag tgcagtggcg tgatctcggc tcactgcaac ctccacctcc tgggttcaag
24181 tgattctcct gcctcagcct cccaagtagc tgggactaca ggtgtgcgct aatttttgta
24241 tttttagtca agacggggtt tcaccatgtt ggccaggatc atctggatct cttgaccttg
24301 tgatccttcc gccttggcct cccaaagtac tgggattcca ggcgtgagcc accgcgcctg
24361 gccttagtaa agacttttaa agtaagactt tttcagtgaa agctactgtt aggcatgaca
24421 tttacaggca actgaaactg atcagatgca tttattaaga aggttaatgc ccctaggtgg
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24541 gggcagtgaa cgcatgtccc taatgcgtgg atgcagccca cgtccaccga taatgccgac
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24661 ctaagttcgc actgggcgca agtggaattt tagtaaacat taagagttta acctttagtg
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24841 tttataatta taatattaat ctacacaata acgacatcta ttattttctt tttttggaaa
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24961 ctccttagag ttacgattta ccatgcaaaa gcatatggta gcctgggata aatgaatctt
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25081 ttgggggact gtcataaggg ctgggtggag gactcagggc taagaagttt gccaggaagt
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25381 gaatggattt taaaaagtca ctactttgca tatcagacaa atgcacacac acacacacac
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26161 ttaaaatata gtcatcacac ttgtgagttt cagacgtgaa tatgaatttt taatttgaac
26221 tgtattttta aacacactaa gtattaacta agtcccctta ggagatatgt ggcaaactga
26281 tatgcatcct cattcattct tctcatagat ggttatttgt tttttaactt gtggcaaaat
26341 tatatatgaa tggtcaccga cttaaaatag ttccacttaa atttttcaac tttctgatgg
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Fig. 63J

```
26401 gtttattgga gtattaaatg tattttcaat ttaatgatat tttcagctta ccttgtgctt
26461 atcaagtatc aagacatagc cccacctaag tcatggagca tctgtatatg ggtttttatt
26521 cttgtttaga attgactttt tcaagtgacc tatttcagta attagccctg ggcctgattt
26581 gcataatgag atctcctaat cttcaagtaa tgcaaagatg gagatattat ggccatgtgg
26641 tctgaagaga ccttttcttt attatgttca gatctttaat tgccttaaaa atagagtagc
26701 taatttacct aacctctagt tattttatta ttgtctttaa agtttttttt aatgttcatg
26761 aaataactgt tctgaaattg cctattttca agggaagctg tgtcttagac ttactaaatg
26821 ctccagttga tactgggaaa gccttcttgt gttcgtagcc tttatccgta gagttttctt
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27121 tccagtgaac agtagctaca gcagagctgt tagacaaaga aaaccgtatt aatgaagcgc
27181 ctcccaattt agcttcatat ggcttttgca ttattttgct gcaaatccat agctaagaca
27241 catcttgtgg catagtccgt aagtcatctt tccgaaggac tgtttgatta aaggttgttc
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27541 ctaagcaaaa tcacaaaata aagtaaaatg cttccacaaa tataatgaaa caatattctt
27601 aaagaatcaa agcagaagaa cttcagagtc tgttgcttat gttaagcata tatttgtttt
27661 cttctctgct tttgatttac ttatttctgg ggtgtaggtt tggcaagtag tactgaaacg
27721 tactgaatgc actgttcttt agcaagatag ttacaggagc tttcaaatgt cctcttaaca
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28861 ttgcgttatc actgaggcta gctgggaaag tagatcagcc cattagtctg ataattcgaa
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28981 ttcccagtgt gtgtcagtga gactcctgat tgaatttaat atgaataaag ataaattctt
29041 tacatttaag gattaaagtc tcagcttctg cttaacttga gattgcactg agaaactcct
```

Fig. 63K

29101 ggctctcggg tatagcggag tcacgacctg gggatgtctg tcccatatgg ctctgtgtgt
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29221 atcatgacag caagaattat ttaggaattg ctcagaataa aactgccttc attatttcat
29281 aaaatgtatc ttggtatctt tagcacctta tttatggctt tttaaaggtt cactgggatt
29341 tataaataat tggacaatgc tagagaccta gtacaagaat gaaagaggac aggcttcttt
29401 cttaataacc tttaaacatt catcaggaag ataaaacttt aaagcaaaat aaaacacatg
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31681 aaggctggct cttctatgtg aagttactta ttcttttacc attgactctc atgttcccac
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Fig. 63L

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31921 aaagtgatgt ttttcctcaa cagaatttat taaaaatcaa gacaccaagc tgttccaaac
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34201 gtcacggctt tgctttccat gttgttactg gattatgctt tttttaattc ttcagtttgc
34261 caagataaca gtcttccgat cttcagaagt ctgtatcaag cttaaggaaa ctgatgtgta
34321 ggaagactcg cctaagaagt ccaaattagc aaggctagca tgtgaggaca tgctggaaaa
34381 gaatagttcc catagatatt gacagagaat gttcataaaa tgctacttgt tttgtggtta
34441 catgagagta acttgtgtcc agtgcagctg tatgtaaggg caacgttttt attctgacga
```

Fig. 63M

34501 ctctgtggtt ttcatgaccc tggatgctta tcatgtctct ctgttggact tcttcaacgg
34561 agttgataca aatacttgct tccaagtgtc catctgccct ctcctccatc ctggccccat
34621 acaaatacgc tacattttta aataatttga aataccctca atagtattta tatttcctgg
34681 tgcttcattc tttccataag aactgtgata ccattattct gtaggatttt tttgtgcttc
34741 cccgtttcac atctctgtgc cagtgagacc catatatcgg tgcaaatcca gaagtttgat
34801 tgtccatctg attagcacac tgttagcaat gtggtggact aaacacagcc aagatgtggg
34861 gctggagctt agcctcctgg gagcagagcg gtgaacatca gatgaagaca tgtgaaaatg
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35041 atactcttcc cagtgactaa gaactgcaga taagtatagg tgcaaataga tggcaaaccg
35101 cagatggcag ctgtgtggtt tcagatgtgc tgcagaactt ttagacgatg tgaacgcaag
35161 gaacttttt gctgagcagt aatctctacc cactggaaat taggccctgg ggggaacaat
35221 gtagtgactt ctatatactt actacatgca gttagacccc tgaagcaaaa gcttttaaaa
35281 acaggctgta aaatgcccat gtatctttat taagcctatt ttccaactgg atagagaaat
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35461 tgtgatttca tttatgtagc aatactatga ttgtggctgc attagatcac gctgatagaa
35521 agatacaaag aaaaactaag tataatgaac taacaattta ttttcactct ttctctaagt
35581 taaaaattcc cagtacattc aaatgaacaa tgaaaataat tgcagaattg tctcctgaaa
35641 tggaaataga ttttttttcc caagcattag caatttcttg ttatttttca aaatcagcca
35701 ctaagccttt cagagcttct tggtgactat tgcaggagaa atcagaatat taatcttgtg
35761 gttttatttc agagttcgct gccaggaagg aggtataatt gggataggag actttttttt
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36121 ccctttataa gcaaccaagt atttgggatg ttattttgat attagtagtg aatttttcag
36181 tatcttccag taccctttgc aagtcacagg ttgacttaaa aggaaaagaa gcaaaatgct
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36961 tttagcaaca aaaagtcagt tacttacttt gagtaagtaa ctcaaagtaa gttaactttg
37021 agtttgagtg cacttttgcg tgtaggttca tttatgtgct tgtgaattta aaaacattgg
37081 gattccacct gaatgaagta aaccaaacat tttaaactat cagccagata gagacatcag
37141 cctttcactt ctttctatat gcagacatat cctaattttt tagaaaaatc aaataggaaa

Fig. 63N

```
37201 attctcaaca attaattgaa gattatagct ctgctctgaa atggtccaga aataggatct
37261 gctcatagaa actcatagtt tgaagcctct gggaggaaag gatactttaa aatttagtca
37321 catatttgga ggagggaaaa gggaaagagc agaatgaaga actgaaaaaa atcacacacc
37381 ggggcctgtc gtgaggtggg ggactggggg agggatagca ttaggagata tacctaatgt
37441 aaatgacgag ttaacaggcg cagcccacca acatggcaca cgtatacata tgtaacaaac
37501 ctgcacgttg tgcacatgta ccctagaact taaagtataa taaaaaaaaa ttttaatagc
37561 cccattaaat aattaaaaag attttttttа gattcacaga agtgtacaaa atttttaggt
37621 ttttttttt ttaagctgtc tgctgaatag tttcttaatg gtctacaatg tttgtatcta
37681 caaacagata ctgtctgctt cttactaccc ttccaagaca agtattatta tggcaattat
37741 tgcccagttt cccgggaaaa atttatccac agttacagaa gaatgagatg caattgtgag
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37861 gtctttgttt tgaggaaaac agtgaaagta aagttaattc aagaccacaa agacaagtaa
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38461 aattcagttg gtgaacacca gcaagtggct ggtaaaagtc cccactttct ctccagggct
38521 gccacaggac ccagaatgag tggtgggcat gtgtgtgaac cctctattca gccagagttt
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39661 aaaatatcca gaatgaaaac taaaagcttg tgcagttttg ctcatttctg aatcttgact
39721 acagaagagt tttgttcatt gtgacttttc caatatagat aacctattgt gcagaaagaa
39781 ataattattc ttctaattaa aaattggtat agtagtcaat caacttgctc agttaaattg
39841 aaatgtcatc tgcaatgctt tgcctgccaa atgcaagaat ccctatagtt tccacagatg
```

Fig. 63O

39901 gcctcacgtt ctaaacctct gaaataacta gtataaccat tttgttttaa aagaaaaatt
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40021 tgttgaaata tatatgcagc tcctaaagct agatattgtc agatgtctgt gccgtaatta
40081 atcatttgtt tttcatatag atgcaagttc tgctggatca accaggaata aagatccaac
40141 aagacgtcca gaactagaag ctggtacaaa tggaagaagt tcgacaacaa gtccctttgt
40201 aaaaccaaat ccaggtataa cagcatgatc tgtgtgtatg gaggtctgtg ggtaccacat
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40321 ctggaagtta cagtgatcag gaatctttgc tgtcagtgag tcattattaa ttacactcaa
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41161 caggcccccc cactccttcc gcgttcccga gctgttctgt tctgccagga ggcagggctc
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42361 gaagccaagg gaagacagtg gtttgtggac gagagggctg tgagcatcct ggcaggtgcc
42421 ccaggatgcc acgcctggaa gggccggctt ctgcctgggg tgcatttccc ccgcagtgca
42481 taccggactt gtcacacgga cctcgggcta gttaaggtgt gcaaagatct ctagagttta
42541 gtccttactg tctcactcgt tctgttaccc agggctctgc agcacctcac ctgagacctc

Fig. 63P

```
42601 cactccacat ctgcatcact catggaacac tcatgtctgg agtcccctcc tccagccgct
42661 ggcaacaaca gcttcagtcc atgggtaatc cgttcataga aattgtgttt gctaacaagg
42721 tgccctttag ccagatgcta ggctgtctgc gaagaaggct aggagttcat agaagggagt
42781 ggggctgggg aaagggctgg ctgcaattgc agctcactgc tgctgcctct gaaacagaaa
42841 gttggaaagg aaaaaagaaa aaagcaatta ggtagcacag cactttggtt ttgctgagat
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43801 tctcacggaa ccgtagacta ggaagtacga gccccacaga gcaggaagcc gatgtgactg
43861 catcatatat ttaacaatga caagatgttc cggcgtttat ttctgcgttg ggttttccct
43921 tgccttatgg gctgaagtgt tctctaga
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Fig. 63Q

EphrinB2, mRNA

```
   1 gcgcggagct gggagtggct tcgccatggc tgtgagaagg gactccgtgt ggaagtactg
  61 ctggggtgtt ttgatggttt tatgcagaac tgcgatttcc aaatcgatag ttttagagcc
 121 tatctattgg aattcctcga actccaaatt tctacctgga caaggactgg tactataccc
 181 acagatagga gacaaattgg atattatttg ccccaaagtg gactctaaaa ctgttggcca
 241 gtatgaatat tataaagttt atatggttga taaagaccaa gcagacagat gcactattaa
 301 gaaggaaaat acccctctcc tcaactgtgc caaaccagac caagatatca aattcaccat
 361 caagtttcaa gaattcagcc ctaacctctg gggtctagaa tttcagaaga acaaagatta
 421 ttacattata tctacatcaa atgggtcttt ggagggcctg gataaccagg agggaggggt
 481 gtgccagaca agagccatga agatcctcat gaaagttgga caagatgcaa gttctgctgg
 541 atcaaccagg aataaagatc caacaagacg tccagaacta gaagctggta caaatggaag
 601 aagttcgaca acaagtccct ttgtaaaacc aaatccaggt tctagcacag acggcaacag
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2461 tacggcagac ctcttagagt ccttaagacg gaagtaaatt atgatgtcca gggggagaag
2521 gaagatagga cgtatttata ataggtatat agaacacaag ggatataaaa tgaaagattt
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Fig. 64A

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2761 cctccgaagg catctcacgg aaccgtagac taggaagtac gagccccaca gagcaggaag
2821 ccgatgtgac tgcatcatat atttaacaat gacaagatgt tccggcgttt atttctgcgt
2881 tgggttttcc cttgccttat gggctgaagt gttctctaga atccagcagg tcacactggg
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3661 aactgtccct ttgtttgaag ttggtttagc tttggaaagt tactgtaaat gccttgcttg
3721 tatgatcgtc cctggtcacc cgactttgga atttgcacca tcatgtttca gtgaagatgc
3781 tgtaaatagg ttcagatttt actgtctatg gatttggggt gttacagtag ccttattcac
3841 ctttttaata aaaatacaca tgaaaacaag aaagaaatgg cttttcttac ccagattgtg
3901 tacatagagc aatgttggtt ttttataaag tctaagcaag atgttttgta taaaatctga
3961 attttgcaat gtatttagct acagcttgtt taacggcagt gtcattcccc tttgcactgt
4021 aatgaggaaa aaatggtata aaaggttgcc aaattgctgc atatttgtgc cgtaattatg
4081 taccatgaat atttatttaa aatttcgttg tccaatttgt aagtaacaca gtattatgcc
4141 tgagttataa atatttttt ctttctttgt tttattttaa tagcctgtca taggttttaa
4201 atctgcttta gtttcacatt gcagttagcc ccagaaaatg aaatccgtga agtcacattc
4261 cacatctgtt tcaaactgaa tttgttctta aaaaaataaa atatttttt cctatggaaa
4321 aaaaaaaaaa aaaaa
```

Fig. 64B

EphB4 Precursor Protein

```
  1 melrvllcwa slaaaleetl lntkletadl kwvtfpqvdg qweelsglde eqhsvrtyev
 61 cdvqrapgqa hwlrtgwvpr rgavhvyatl rftmleclsl pragrscket ftvfyyesda
121 dtataltpaw menpyikvdt vaaehltrkr pgaeatgkvn vktlrlgpls kagfylafqd
181 qgacmallsl hlfykkcaql tvnltrfpet vprelvvpva gscvvdavpa pgpspslycr
241 edgqwaeqpv tgcscapgfe aaegntkcra caqgtfkpls gegscqpcpa nshsntigsa
301 vcqcrvgyfr artdprgapc ttppsaprsv vsrlngsslh lewsaplesg gredltyalr
361 crecrpggsc apcggdltfd pgprdlvepw vvvrglrpdf tytfevtaln gvsslatgpv
421 pfepvnvttd revppavsdi rvtrsspssl slawavprap sgavldyevk yhekgaegps
481 svrflktsen raelrglkrg asylvqvrar seagygpfgq ehhsqtqlde segwreqlal
541 iagtavvgvv lvlvvivvav lclrkqsngr eaeysdkhgq ylighgtkvy idpftyedpn
601 eavrefakei dvsyvkieev igagefgevc rgrlkapgkk escvaiktlk ggyterqrre
661 flseasimgq fehpniirle gvvtnsmpvm iltefmenga ldsflrlndg qftviqlvgm
721 lrgiasgmry laemsyvhrd laarnilvns nlvckvsdfg lsrfleenss dptytsslgg
781 kipirwtape aiafrkftsa sdawsygivm wevmsfgerp ywdmsnqdvi naieqdyrlp
841 pppdcptslh qlmldcwqkd rnarprfpqv vsaldkmirn paslkivare nggashplld
901 qrqphysafg svgewlraik mgryeesfaa agfgsfelvs qisaedllri gvtlaghqkk
961 ilasvqhmks qakpgtpggt ggpapqy
```

Fig. 65

EphrinB2

```
  1 mavrrdsvwk ycwgvlmvlc rtaisksivl epiywnssns kflpgqglvl ypqigdkldi
 61 icpkvdsktv gqyeyykvym vdkdqadrct ikkentplln cakpdqdikf tikfqefspn
121 lwglefqknk dyyiistsng slegldnqeg gvcqtramki lmkvgqdass agstrnkdpt
181 rrpeleagtn grssttspfv kpnpgsstdg nsaghsgnni lgsevalfag iasgciifiv
241 iiitlvvlll kyrrrhrkhs pqhtttlsls tlatpkrsgn nngsepsdii iplrtadsvf
301 cphyekvsgd yghpvyivqe mppqspaniy ykv
```

Fig. 66